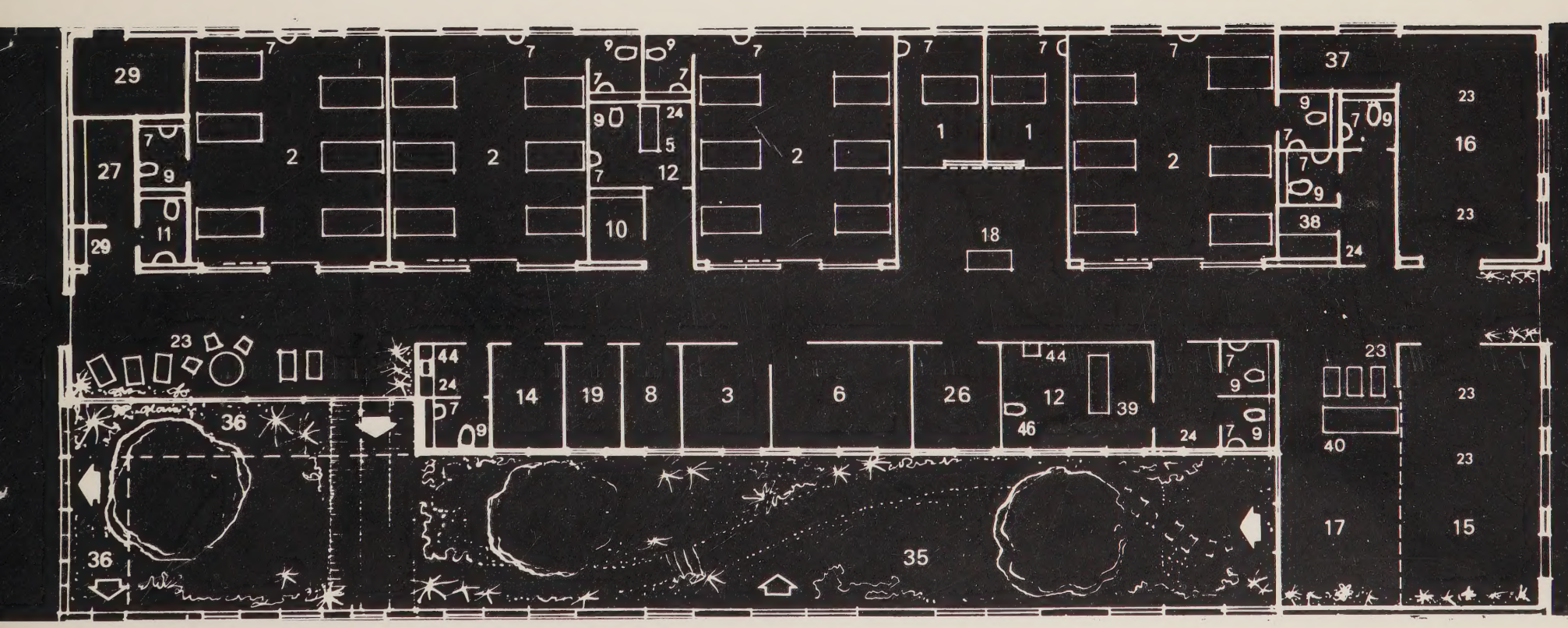
Mc0037

Centrepiece

Bliss
HOQH:CN
copy 2
HEALTH BUILDINGS
LIBRARY

Ward Conversion for Geriatric Patients

HEALTH BUILDINGS LIBRARY
DEPARTMENT OF HEALTH
AND SOCIAL SECURITY
EUSTON TOWER
286 EUSTON ROAD
LONDON, NW1-3DN



Scottish Hospital Centre

January 1974

Digitized by the Internet Archive
in 2025 with funding from
UCL Library Special Collections

https://archive.org/details/ucl_mc0037

Miss HOGH: CN

Tony Norwood

Scottish Hospital Centre

Crewe Road South, Edinburgh. EH4 2LF

Telephone 031-332 2335

your ref.

our ref. 4/5/59/1

25 January 1974

Dear Sir,

I enclose for your interest a copy of our report relating to the conversion of wards for geriatric purposes which has been published in our Centrepiece series.

This report, based on study work by Nursing and Architectural staff, analyses the activities on a number of geriatric wards which have undergone some degree of conversion from other uses and draws conclusions enabling guidance to be given on the adaptation of 'Acute' wards to meet the requirements of geriatric patients. Recommendations are also made on conversion of 2 wards - E.M.S and Nightingale type - and sketch drawings together with costs for each conversion are included.

With the new range of hospitals being developed and the consequent 'freeing' of some accommodation, it is likely that more conversions of this nature will be necessary. In view of this you might feel it appropriate to comment on this publication in your journal.

Yours faithfully,

(J.R.Y. MUTCH)
Secretary

HEALTH BUILDINGS LIBRARY
DEPARTMENT OF HEALTH
AND SOCIAL SECURITY
EUSTON TOWER
286 EUSTON ROAD
LONDON, NW1 3DN

Bliss HOQH:CN
Copy 2

WARD CONVERSION FOR GERIATRIC PATIENTS

HEALTH BUILDINGS LIBRARY
DEPARTMENT OF HEALTH
AND SOCIAL SECURITY
EUSTON TOWER
286 EUSTON ROAD
LONDON, NW1 - 3DN

Price £1·00

Scottish Hospital Centre
Crewe Road South
Edinburgh EH4 2LF

CONTENTS

CHAPTER		Page
1	Introduction	3
2	Scope and method of study	4
	Functional requirements of a geriatric ward	4
	Aims and method of study	5
3	Analysis of findings and conclusions	7
	Accommodation for patients	7
	Accommodation for functions related to patient care	11
	Accommodation for other functions	13
	General considerations	15
4	The principles applied	19
	Single-storey ward	20
	Multi-storey ward	24
5	Cost	27

APPENDICES

I	Wards covered in study	40
II	Systematic sequential approach to conversion work	54
III	Fold out key to plans	57

CHAPTER 1: INTRODUCTION

1.1 In October 1967 the Scottish Hospital Centre published in its Centrepiece series a report entitled "Upgrading of Wards"* which offered guidance on the upgrading or modernisation of "acute" wards. Since then a considerable amount of upgrading work has been carried out in wards in Scottish hospitals.

1.2 This publication, which is on similar lines, offers guidance on the adaptation of "acute" wards for geriatric patients. The decision to undertake the study was based on the assumption that some hospital buildings at present being used to accommodate medical and surgical patients would, on their replacement by district general hospitals, be used for geriatric care.

1.3 The report makes recommendations on the conversion of two types of ward, one in EMS hospitals and the second in Infirmary buildings. Sketch drawings together with detailed costs at mid-1973 prices for each conversion are also given.

1.4 The work was undertaken by two Nursing Officers, Miss F G Macdonald and Miss J Mander, an Architect, Mr A N Simpson, and a firm of Quantity Surveyors, Messrs James D Gibson and Simpson. The team gratefully acknowledges the help received from many officers of the hospital service and in particular the staff of the units in which the studies were carried out.

---

* See Scottish Hospital Centre Centrepiece "Upgrading of Wards"

CHAPTER 2: SCOPE AND METHOD OF STUDY

2.1 Although age is not necessarily a guide to failing health and ability, people over the age of 65 years who develop medical problems are for practical purposes regarded as geriatric. These problems may include multiple pathology and a loss of independence; there may be impaired mobility and incontinence. These aspects may also be complicated by social factors to which the best solution may be hospital care. But there is a shortage in some areas of geriatric beds, and many such persons are admitted to acute hospital beds where, by the nature of their condition and because of their age, their progress is slow and this situation has in turn created problems related to the misuse of acute beds. The continuing pressure on the hospital service to provide accommodation and care for the dependent geriatric patient has resulted in a variety of buildings being used. New units have been built and some old buildings have been upgraded.

2.2 Unfortunately most of the old and some of the newer geriatric wards in Scotland do not satisfy fully the needs of patients and nurses, and to a lesser extent the space requirements of doctors and auxiliary staff who use them. What is seriously lacking in most wards is sufficient and suitable living space, ie, for dining and day activities. This is mainly because of a change in medical and nursing policies over recent years in the treatment and care of geriatric patients, whereby they are now actively encouraged to be out of bed and following a therapeutic routine during the day. Again, bed panning and bed bathing have given way to the use of more modern methods and these require easily accessible and carefully designed WC compartments, bathrooms and showers.

2.3 The ideal is clearly to build anew, basing design on the objective analysis of functional requirements and recognising the way in which they differ in "long-stay" care from "acute" type units. Realism suggests, however, that with continuing shortage of funds for new geriatric accommodation coupled with a shortage of geriatric beds there will be advantages in trying to convert former "acute" wards for long-stay geriatric purposes, and in improving existing "geriatric" wards to the maximum extent practicable.

Functional requirements of a geriatric ward

2.4 In broad terms the functional requirements of a geriatric ward are to provide:-

a a suitable and homely environment for the protection and general care of in-patients and for their basic human needs

b for the reception and discharge of patients, history taking and medical examination

c facilities for nursing attention and rehabilitative work

d the necessary diagnostic and treatment facilities

e for relatives of patients and other visitors

f where necessary, for clinical teaching

g for these functions as economically (in terms of capital expenditure and running cost) as may be compatible with the required standards.

2.5 As stated in the Centrepiece "Upgrading of Wards", the three main users of wards are patients, nurses and doctors. There are many others who use the accommodation, such as domestic and catering staff, medical social workers, physiotherapists, occupational therapists, visitors and others, but it is generally accepted that by and large their needs will be met by a design that satisfies the requirements of the three main users.

Patients requirements

An environment which will provide an acceptable level of comfort, privacy and amenity with facilities for their human needs and for the diagnosis and treatment of their condition; also required is space in relation to wheelchairs, reassurance from visual contact with nursing and medical staff, easy access to clothing etc, and an efficient nurse call system.

Nurses' requirements

Observation of patients, commensurate with their condition; facilities for the giving and receiving of reports and instructions and maintaining records; fairly accessible storage for linen and items of equipment; an efficient "topping-up" system; facilities for preparation of items for and the carrying out of nursing activities, and for the disposal of items used in patient care; cloakroom and toilet facilities.

Doctors' requirements

An environment suitable for history-taking, examination, diagnosis and treatment of patients; facilities for writing, interviewing and teaching; access to patients' records.

Aims and method of study

2.6 The study was conducted in seven wards in four types of building (EMS hospitals, former poor law institutions, former infectious diseases hospitals, and a converted Victorian mansion). All the wards had undergone a degree of upgrading. This mainly involved the provision of additional sanitary accommodation and in four instances of day spaces. The study had two main aims:-

a to establish whether or not the upgrading had created an environment which provided improved amenity for the patient and met the requirements of the nurse

b to produce planning guidance for future conversion and upgrading.

2.7 The long-stay nature and care of geriatric patients demands the provision of facilities on a different scale from that required in an acute ward. The emphasis is frequently on obtaining and maintaining independence and mobility, and to this end patients are required to be dressed, to practise walking, and to sit and have meals in a room which has domestic atmosphere. A large number of patients have urinary incontinence and it is therefore critical that sanitary facilities should be suitably located and provide both for the patient who needs assistance and for the nurse who has to deal with this problem.

2.8 It can be seen from this that the degree of care and the facilities required by patients evolve from their disability and dependency, and on this premise particulars about the patients were obtained from sisters in charge by means of a structured questionnaire. The design of a ward and the room relationships also have a direct effect on the work of the nurse, and through her on patient care, and therefore continuous observations of the nurses' work were carried out in the wards over a 12-hour period: in two instances a 24-hour period was covered. A summary of the comments derived from these observations is in Chapter 3. More detailed comments accompany the appropriate plans of the upgradings in Appendix I.

CHAPTER 3: ANALYSIS OF FINDINGS AND CONCLUSIONS

3.1 The findings of the 7 studies highlighted some of the difficulties inherent in caring for long-stay geriatric patients and posed various problems. Some common difficulties were established: these related to basic requirements.

3.2 From the observations on the nurse's work a picture was obtained of the patient's day which in the main consisted of regular meals between which toileting, washing, bathing and dressing were interspersed. In some wards time was set aside for group activities such as communal singing and simple games. There were some technical nursing procedures in all the wards, but the emphasis was mainly on general care with much time being spent on personal hygiene. Physiotherapy was not observed in any of the wards mainly because of the shortage of space. In one ward some patients were taken to a nearby physiotherapy department and in all the wards the nurses helped with walking practice. Occupational therapy was observed in one ward, and in 3 wards the nursing staff arranged various diversional activities. With one exception lunch was the only meal for which patients sat at a table, all other meals being taken in bed. The reason for this appeared to be organisational rather than lack of suitable accommodation. For the most part breakfast was served at or before 7.30 am, but in one ward where some patients sat at tables this meal was fully an hour later. In the majority of wards most patients were back in bed between 3.0 pm and 5.0 pm and in one they stayed up a little later.

3.3 The amount of money available for upgrading work had been a major factor in deciding what could be done, and therefore the amount and standard of work on the 7 wards differed. There was also a variety of building types ranging from the single-storey EMS-type ward to the multi-storey Infirmary type to the converted mansion house - none had been originally built as wards for geriatric patients. The first was relatively easy to improve and extend, the second was not, and the mansion house, because it bore no relationship to original hospital design, had proved impossible to achieve proper functional relationships between rooms and activities.

3.4 Apart from building difficulties, there were many other influences on the design of these upgrading schemes including the individual preference and requirements of each hospital, and the continuation of traditional practices which may no longer be relevant, but it has been possible to extract certain common threads of comment.

Accommodation for patients

3.5 In no case had an ideal situation of four or six bed rooms with a number of single rooms been achieved. This was because in the schemes studied additional building work had been

limited to sanitary facilities and/or day rooms. The most that had been achieved in bed areas was the sub-division of very large areas into two or three smaller but still quite large spaces. Sanitary facilities had been improved by the addition, in some schemes, of a suite of WC compartments, baths and a shower but often these were placed at too great a distance from bed areas and day rooms. Where separate day and dining facilities had been provided these were much appreciated by patients and staff, and therefore it was disappointing to note in some upgrading schemes that these facilities had been given a low priority. Insufficient attention had also been given to the storage of patients' clothes close to the bedsides. These and other points are developed in subsequent paragraphs.

3.6 Bed rooms In only 2 schemes had single rooms been provided, at a ratio of 1:12. Ideally, up to 25% of beds should be in single rooms, the remainder being in multi-bed rooms of no more than 6 beds. As in acute wards, the provision of single rooms enables the accommodation of patients who are liable to infect others, or are particularly susceptible to infection, or are seriously ill or dying, or are likely to disturb others.

3.7 The remaining beds should be grouped in fours or sixes. Twos and threes should be avoided since they do not offer any more privacy and may cause tension between patients. With beds conveniently arranged, groups of four have clear advantage over groups of six, as each patient enjoys the partial privacy of a corner. In a six-bed room the patient in the middle has patients on either side.

3.8 Rooms accommodating bedfast patients should be grouped with the nurse working rooms, compromise being sought between privacy and the reassurance of frequent contact with nursing staff.

3.9 The width of the ward is a severe limiting factor in achieving bed spacing at 2.40m and an area per bed of 10.20m^2, and therefore it may not be possible to enclose all the beds in rooms. Division into bays achieves some visual but not auditory privacy. Again the width of the original ward may limit the possible rearrangements of beds and it has been noted that reduced bed spacing can seriously expose "corridor" patients to passing disturbance in layouts with beds parallel to the window walls, this arrangement is not satisfactory in a ward less than 7.60m wide if three beds have to be accommodated in this width. In narrower wards, bays with beds placed head to the window wall will be preferable. Bed centres of anything less than 2.10m are undesirable. Where bays are divided by a partition the partition should be approximately 1.40m high which both enables the bed head light to be mounted on the partition and gives sitting height privacy. Higher partitions make observation difficult. Sub-division should not be carried to excess: the best design is the one which in practice facilitates good patient care.

3.10 Despite the fact that the majority of geriatric patients spend much of their day out of bed undressed, the facilities

for storing clothing were not always adequate. Even in some recent upgrading schemes clothing was kept in communal stores outwith the bed areas; this was very inconvenient for both patients and staff. Geriatric patients require clothing and luggage storage in excess of what is needed by short-stay patients. For day-to-day clothing a variety of wardrobes and combined locker/wardrobes is available and these should be provided preferably at the bedside. For storage of outer clothes, including seasonal variations, a separate clothing store in or adjacent to the ward is necessary.

3.11 Sanitary facilities Most WC compartments were inconveniently located in relation to the bed and day areas, were too small to accommodate both the wheelchair patient and the attendant nurses, were fitted with inward opening doors and had a variety of minor but nevertheless important faults or deficiencies. Ideally in a sub-divided ward, WC and washing compartments should open off each bed room. Where this is not possible they should be located near to the bed rooms and also be in close proximity to, but not directly off day activity spaces. WC compartments adjoining day activity spaces should not be more than 12.00m from any point in the main day activity space. Also ideally, mainly for hygienic reasons, there should be a hand-rinse basin in each WC compartment, but unless the compartment is not less than 2.75m^2 (1.85m wide x 1.50m deep), and the hand-rinse basin can be positioned so that it can be used by a patient in a wheel or sani-chair, and that there is space for a paper towel dispenser and a disposal bin, the hand-rinse basin may be omitted. The WC compartment should have an outward opening door on the wall directly opposite the WC pedestal to avoid the turning of wheel or sani-chairs, and the total area (2.75m^2) should permit two nurses to assist. Toilet roll holders should be of minimum projection and should be positioned so as to be readily accessible to the patient but unobstructive to the nurse.

3.12 Where wash-hand basins for patients have to be provided outwith WC compartments they should be enclosed in separate cubicles of approximately 1.40m^2 to increase privacy. In many instances, basins were supported from the floor thereby precluding their ready use by wheelchair patients. Basins should be wall-mounted on brackets thus combining the dual function of structural support and towel rail. The needs of hair washing should be borne in mind. In most instances no adjoining laying surface had been provided for sponge bags, toilet articles etc and therefore it is recommended that laying surfaces should be designed integral with the required basin provision. Careful consideration should be given to the pattern of tap handle more easily operated by the elderly patient whose hand movement may be limited - taps with a fluted finger grip action appeared to be the most acceptable.

3.13 Mirrors in conjunction with wash-hand basins were generally set too high for the wheelchair patient, ie 1.40m to 1.85m above floor level. Alternative mirror positions should be provided to accommodate both sitting and standing patients. Coat hooks at 1.30m above floor level are required to accommodate patients' clothing temporarily when washing. It was observed that

in some units roller towels were still in use in washing compartments: these should be replaced by paper towels and disposal bins.

3.14 Showers can sometimes be fitted in converted wards where a bathroom cannot. Showers take less space, are self cleaning and more hygienic than baths but their usefulness depends on features such as esily used seating facilities, adjustable height sprays with controlled temperatures, and the wet space curtained off from the dry space which will be used for undressing and dressing. There should be no "step" between the wet and dry spaces and the drainage outlet must be efficient. A WC pedestal with associated fitments should be located in the dry space. Notwithstanding the more general acceptance of showers, there can be some nursing resistance to their use because of the difficulties of assisting and remaining dry when showering geriatric patients, but at least one shower room should be provided in a geriatric ward.

3.15 A bath should be fitted in each ward. It should have a non-skid enamel finish to the bottom and should preferably be free-standing and raised 250mm above floor level. It should not be "boxed in" so as to prevent the use of a patient hoist. Domestic patterns of bath fitted with small hand-hold rails are to be avoided as hands can readily slip between handle and bath. Accordingly, floor-mounted over-bath grab-rails should be fitted at a point approximately one-third of the bath length from the overflow end. The bath should include a "hand held" thermostatically controlled shower of adjustable height in addition to normal taps. The bathroom door should be located so that wheelchair patients can enter parallel with either side of the bath without turning. The nurse-call system should be easily identifiable and accessible to a patient in the bath. The area required for a bath and an associated WC pedestal is 9.30m^2.

3.16 In one unit only had a socket outlet been provided for an electric razor: at least one such socket outlet should be provided per ward and this might be suitably located in the bathroom.

3.17 The range of diagnostic and treatment procedures carried out in a long-stay geriatric ward makes the provision of a treatment room a lower priority in relation to other needs. Washing and changing the doubly incontinent patient, however, presents particular problems and for this purpose it is recommended that in place of a treatment room there should be a room of 16.75m^2 which should include a washing couch fitted with a thermostatically controlled hand-rinse shower and linked to a WC flush in the floor. The couch should be drained by a 150mm drain connection to an external manhole. The room should also contain a combined WC and bidet with a thermostatically controlled shower handset and a 'Belfast' sink with wall-mounted mixer taps (wrist operated) and adjoining laying surface. There should be an easily identifiable patient call-system with ready access for the nurse from both the washing couch and the combined WC and bidet. The floor finish should be impervious and drainable.

3.18 Day spaces Geriatric patients are encouraged to be active and to be out of bed during the day. The day activity space is therefore the hub of the unit and facilities are required for sitting, eating, reading, writing, watching television, listening to the radio, seeing visitors, and if possible observing outside activities. There is clearly an incompatibility between some of these requirements and there should be some separation of them rather than catering for all in a single room; this may be difficult in a conversion of an existing ward. Day and dining areas should be capable of both separate and combined use. Whatever solution is adopted, it is important for rooms in which patients will be sitting to be free from draughts.

3.19 Some day activity spaces were observed where because of high sills and, in one instance, obscure glazing to the lower levels of window glazing it was impossible for seated patients to enjoy any view from day spaces. Window sills in day spaces should be kept at a height so as to ensure clear viewing by seated patients. To achieve a domestic atmosphere and to assist sound reduction, day spaces require soft furnishings, a wide choice of chairs, and carpeting.

3.20 Observation of patients Nurses need to be able to see patients fairly readily while going about their work and to be able to see and hear - certainly a proportion of patients - from some suitable fixed point. In a ward for geriatric patients, observation by nurses and visual contact with other nursing staff must take precedence over privacy for the patient. This can be achieved and still give some privacy to the patient by having enclosed rooms with a continuous glazing strip across the full width of the corridor wall extending from 1.30m to 1.90m above the floor; this gives the effect of visual contact without undue exposure. Care must be taken that corridor lights are not directly visible from pillow height.

3.21 Bathroom, showers and WCs must essentially be private but all doors should be capable of being readily opened from the outside in an emergency.

Accommodation for functions related to patient care

3.22 Ideally, the basic accommodation to facilitate good nursing procedure should be grouped together: the principal rooms and areas involved are the nurses' station, the sister's/charge nurse's office, the preparation room, disposal room, sluice/test room and the pantry. The doctor's office should also be near the nurses' station.

3.23 Nurses' station Nurses' stations were seen in only three of the wards covered by the study, the duty room being used in the remainder as the point of reference. Clearly it is important, particularly during the night, that there should be a central position from which nurses can observe and be readily available to the patients. The nurses' station is the base from which nurses work and that from which they may receive or read instructions and record procedures in the nursing records held there.

3.24 Sister's/Charge Nurse's office An office is required from which to organise the work of the ward; this includes writing notes, correcting records and speaking to groups of staff. The office should be adjacent to the nurses' station. As space is likely to be at a premium the interview of patients' relatives could be carried out in this office.

3.25 If it is not possible to provide office accommodation for the sister/charge nurse adjacent to the nurses' station, the nurses' station should be planned to accommodate both functions. The nurses' station should be closely related to the preparation and disposal areas. Pressure of space in some conversion schemes may oblige a compromise combination of the nurses' station with the preparation area. The telephone and preferential lighting of the nurses' station can disturb nearby patients especially at night, and in a ward with open bays consideration should be given to providing a part-glazed enclosure for the nurses' station.

3.26 Preparation and disposal areas For efficient working all preparation facilities may be grouped in one room, as should disposal facilities, and these two rooms should be placed next to each other. The preparation room* is the storage space for all supplies, clean and sterile, necessary for the care and treatment of patients, and provides space for the preparation and assembly of items of equipment for nursing, diagnostic and therapeutic procedures. The storage space for all items kept in the ward should be calculated on the basis of a topping-up system under retention of a 48-hour supply to cover weekends. In geriatric wards the drugs requirement is low, but the need for some disposable items eg incontinence pads etc is high and there are extra requirements for linen. In terms of point-of-use storage the emphasis should be on shelving for storage of linen, underwear, incontinence pads etc.

3.27 A limited quantity of crockery and cutlery should be stored in a pantry and simple facilities provided for preparation of occasional beverages. While this arrangement assumes that all main meals will be plated in and routine beverages distributed from a central catering department and that dish-washing will also be centralised, in some hospitals it may be necessary to accept the method of bulk supply of food in heated trolleys.

3.28 The disposal room is a temporary storage point for all items of equipment which have to be removed for cleaning, reprocessing or destruction, linen, CSSD items, etc.

3.29 Sluice room functions are unpleasant: they should be accommodated separately from the disposal room. Bedpans with their carriers, urinals etc should be stored here.

3.30 The nurse working rooms can conveniently serve up to 30 beds.

---

* See Scottish Hospital Centre Information Sheet "Preparation Room"

3.31 Medical staff offices The need for a medical staff office depends upon the amount of time which a doctor spends in the ward situation. During the study it was noted that the doctor visited once daily and by request. It is considered therefore that a room specially allocated for this purpose would be relatively unused. The doctor's point of reference in the ward is the case note trolley, which in all instances was located either at the nurses' station or in the duty room, and his work was carried out in consultation with sister or the nurse in charge. It seems logical therefore that in circumstances where space will be at a premium the nurses' station or the sister's/charge nurse's office should be used for this purpose, and that any office to be provided should be located outwith the ward.

3.32 Wheelchair/Sani-chair bay Rarely had sufficient space been made available for the temporary storage of wheelchairs and sani-chairs when not in use. Although in a conversion scheme the limitations on space may prevent this, it would be desirable to have a broad-fronted shallow storage area for wheelchair/sani-chairs located convenient to the bed rooms it serves.

Accommodation for other functions

3.33 Equipment store Where storage generally was lacking, the ward itself was used causing obstacles for patients to fall over, and staff were impeded in their general movements. Instances were observed of disused showers being utilised to store patients' walking aids, mechanical hoists, sani-chairs and cot sides. An equipment store should be provided for bed cradles and walking aids and hold bulk stocks of items such as incontinence pads.

3.34 Domestic service room A room* either in the ward area or adjoining it is required for the storage and cleaning of domestic equipment.

3.35 Staff cloakrooms It is assumed that central changing accommodation will be available for non-resident staff and that cloaks and small personal items will be kept in staff cloak-rooms which will have associated WCs.

3.36 Utility room Utility rooms should not be provided but consideration should be given to the provision of facilities at hospital level for the laundering of items of personal clothing.

Other aspects of accommodation surveyed

3.37 Additional points of detail noted during the survey and which should be borne in mind by designers of conversion schemes include finishes of floors and walls, colour, positioning of handrails, landscaping, lighting and call systems.

---

* See Scottish Hospital Centre Information Sheet "Domestic Service Room"

3.38 Finishes of floors and walls Jointed floors, ie ceramic or vinyl tiles, should be avoided particularly in the sanitary areas on the grounds of cleansing and hygiene. Welded non-skid vinyl sheeting is preferred: the seams should be welded and the surface finish should be non-skid and glare free. To facilitate cleaning the floor covering should be carried up to form matching coved skirtings. Soft colours of marled pattern similarly assist in being both practical and pleasant.

3.39 There is a certain amount of resistance to the use of carpeting in wards for long-stay geriatric patients because of the impossibility of maintaining it to a high standard in situations where there is a high level of incontinence. Nevertheless, because of the importance of achieving a domestic atmosphere the recent introduction of non-woven man made fibre pile carpeting on a vinyl base should be studied and tested.

3.40 Ramps had been provided both within and outwith wards: in some cases the gradient was excessive and slippery. Ramps should not exceed a maximum gradient of 1 in 10 and should have a non-skid finish.

3.41 Timber surfaced walls and facings require heavy duty paintwork with an epoxy base. Large areas of wall were noted in gloss oil paint with consequent discomfort to patients and staff from glare and dazzle. Matt paint should be used on all wall surfaces. When curtaining is used it should be both fire-resistant and washable. In situations of exposure to the sun, curtains or blinds should be fitted to all windows in patient areas.

3.42 Colour In geriatric wards patients will be sitting or lying in bed for long periods, with a greatly restricted field of vision. Most hospitals had attempted to introduce a domestic note in their colour schemes. Although some were reasonably successful the results generally suggested an amateurish compromise and that there should be greater use of professional designers. Drab colour schemes are to be avoided at all costs. Soft restful colours should be used mainly in wallcoverings, chairs, curtains and bedcovers.

3.43 Handrails Handrails were most usefully positioned in areas where patients were likely to be walking, ie passageways, toilet areas, and lengths of uninterrupted wall, but unfortunately many were badly designed, providing insufficient gripping surface and liable to cause damage to fingers and wrists. The most suitable pattern seen was a 50mm roll in either wood or metal, cantilevered from the wall surface some 50mm at a height of approximately 900mm. In WC compartments, hand grips were observed which formed major obstructions to nurses in assisted toileting, ie vertical poles positioned in front of and to the side of WC pedestals.

3.44 Landscaping Little attempt had been made at landscaping, particularly in internal courts. Landscaping of a sympathetic nature with raised flower beds, which the patients can be

encouraged to enjoy, should be laid out professionally in positions readily observable from bed rooms and day activity spaces.

3.45 Radiators Unprotected radiators were noted in many day, treatment, and sanitary areas. With long-stay geriatric patients it is imperative that radiators be protected irrespective of their position. Heated towel rails are potentially dangerous and should be avoided.

3.46 Lighting Generally, lighting standards were good although in a few instances night lighting was insufficient for nursing duties. Night lighting both for general observation and nursing duties can be achieved by the use of a fluorescent strip fitting incorporating a dimmed night light source. Alternatively, a mobile lamp plugged into an existing socket outlet within the bed room would suffice.

3.47 In most instances individual bed lighting was poor; some bed positions were such that they did not coincide with the wall-mounted light fittings. Light sources were observed that failed to provide sufficient illumination for patients to read, and in some cases bedhead light switches could not be reached by patients. A wall-mounted adjustable bedhead bracket of the pattern recommended by the Department of Health and Social Security, observed in one ward, had proved satisfactory in use.

3.48 Call systems Either audible or visual pattern patient call systems had been installed in all wards visited. However, in some instances no 'bell push' mechanism had been provided to link with the wall socket. The design of bell push provided should be such that it is easily accessible to and manipulated by an elderly patient.

General considerations

3.49 Study of existing units has confirmed several common factors of varying importance in addition to those listed in the Scottish Hospital Centre publication "Upgrading of Wards". In order of priority these are:-

1 The grouping of the most ill patients to facilitate observation by nurses who have ready access to nurse working areas. The resources of the ward can then be concentrated on those patients who most need them

2 The concentration of supply and disposal facilities in two adjacent areas conveniently located for the nurses treating the ill patients (In some cases this can be more a matter of reorganisation than replanning, but the important thing is to have these two areas)

3 The improvement of the level of privacy for the patient. This involves partitioning, curtaining and the removal of noisy activities by the provision of a day room. For some

patients the bed area is necessarily the location of treatment, bathroom and toilet functions which need privacy

4 The provision of acceptable WC, bathing and washing facilities for both ambulant and wheelchair patients

5 The provision of day and dining space in such a relationship that either individually or together the resultant areas available can be made to satisfy readily the varying requirements of the patients

6 The provision of general storage space to accommodate 'walking-aids', wheel and sani-chairs.

Basic principles which have to be determined before any decision is taken to convert or upgrade a ward must ensure that if any major expenditure is to be incurred in conversion or upgrading the life expectancy of the existing building must be assumed to be not less than 15 to 20 years, and that the existing structure is capable, with reasonable modification, of continuing to provide shelter and control of heat, light and ventilation.

3.50 The principal controlling factors thereafter are:-

1 the size of the ward

2 the amount of money available

3 the work load

4 the background support available ie:-

a catering service) ward kitchen v. central meal service
b dish-washing arrangements)

c collection service of adequate frequency)
- i ward v central storage of linen (ie topping-up)
- ii pharmaceutical supplies
- iii CSSD and other services
- iv disposal room

3.51 In an 'acute' ward one nursing team using one set of nurse working rooms can serve an optimum of 30 beds. It is considered that a similar charge of 30 geriatric patients, provided patient dependency is not excessively high and the grouping of bed rooms and day activity spaces is reasonably compact, is the maximum number that can be cared for effectively by one nursing team.

3.52 Within existing ward areas, however, it is impossible to provide the essential nurse working rooms plus the day and dining spaces required without a significant reduction in bed

numbers, but as the object of the study is the design of effective geriatric units utilising available hospital buildings compromise may be required.

3.53 Three possibilities might be considered, dependent on the form of the existing building, ie single or multi-storey:-

1 the reduction in size of nurse working rooms generally by some 10% combined with an approximately similar restriction in bed provision to, say, 24

2 the overall increase in available areas by an extension to the existing building

3 the possible integration of two adjoining small units to form a single economic nursing charge.

3.54 Study of the resultant compromises inevitable in the conversion of existing wards suggests that a systematic sequential approach is important. How this can be carried out by the use of a simple algorithm, common to any conversion or upgrading, is set out in Appendix II.

CHAPTER 4: THE PRINCIPLES APPLIED

4.1 In spite of the limitations imposed by existing buildings, effective and up-to-date wards can be created although they cannot always incorporate all the features found in new units. The following examples of conversion work illustrate compromises which we consider to be acceptable in upgraded wards. Whatever the standard of sophistication priority is given to basic principles.

4.2 A broad distinction has been made between single storey wards which are relatively easy to extend and those on upper floors which are not. Insofar as the basic requirements of any ward are similar the 2 examples offered present points of comparison with actual projects. Ward A is a typical EMS-type ward and its problems are comparable to many single storey wards. Ward B is a representative example of wards to be found in many multi-storey hospitals. Both A and B could undoubtedly be considered reasonable candidates for conversion.

4.3 The following pages show how each of these 2 wards might be converted. The single storey example (Ward A) shows how it is relatively easy to extend the building and thus to attain reasonable bed numbers. On the other hand on the upper floor example (Ward B) it would be uneconomic and probably difficult to extend, and in the conversion the bed numbers diminish to some extent.

4.4 Supplementary information and comments on salient points are given opposite each pair of plans and additional material on costs is contained in Chapter 5. The schemes can be examined in detail to see the extent to which each meets the requirements of a ward for long-stay geriatric patients and satisfies the considerations analysed in Chapters 2 and 3. There is a fold-out key to the plans in Appendix II.

SINGLE STOREY

Following the format of the publication "Upgrading of Wards", wherein it is stated that "a major upgrading seeks to achieve a standard of accommodation as near as possible to that deemed appropriate in new units", careful and experienced judgement is necessary to ensure that the quality of provision is in direct relationship to both the life of the structure and the capital expenditure proposed.

This unit requires to develop beyond the existing structure's envelope and does so into the common area between wards, utilising some 50% of this open space; the remainder is landscaped in such a fashion as to be seen by the bedfast patient. There is no connection between adjoining units, but this, if desired, could readily be formed at the party wall between day spaces.

The six basic principles established previously, underly the scheme.

First

The patients are generally accommodated in 6-bed rooms with adjacent WC accommodation. Two single rooms are provided for the ill patients who because of their condition are considered bedfast and do not require an adjacent WC. The ill and permanently bedfast patients are therefore accommodated in these two single rooms and the multi-bed ward opposite the nurse working rooms; thus both during the day and at night the nurses are well placed for observation and care of the patients.

Second

Nurse working rooms and sister's room are next to the nursing station with ready access to patients' records.

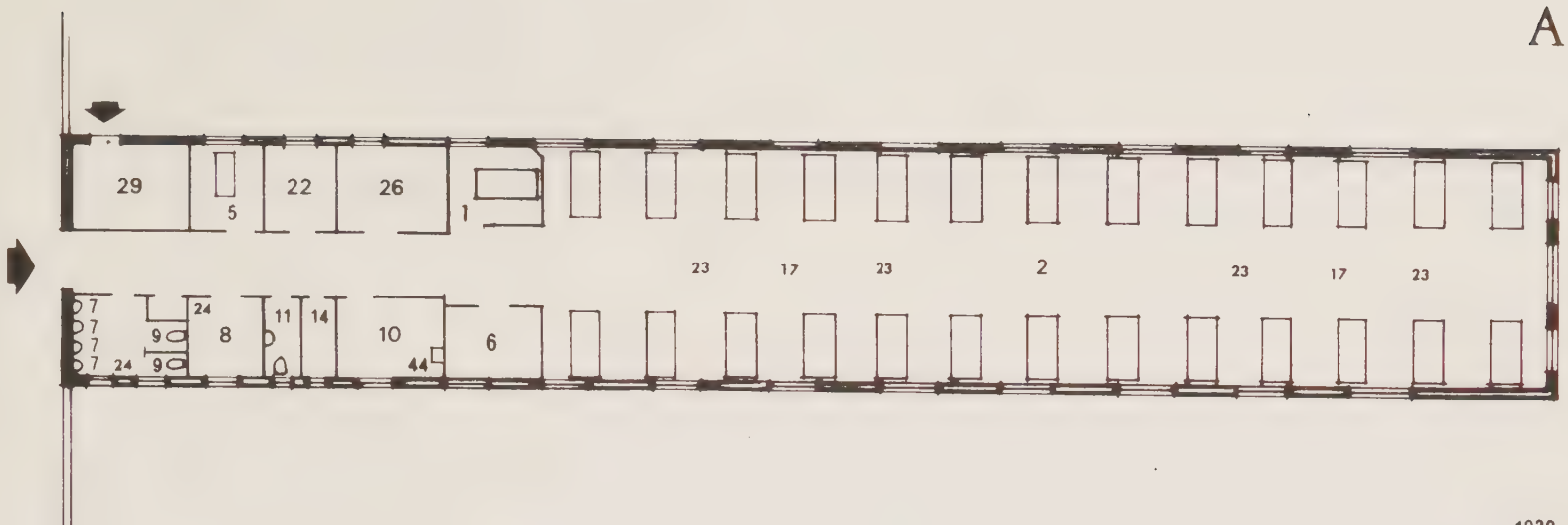
All these rooms are grouped convenient to both the bed areas (with particular reference to the ill and bedfast) and to the day/dining spaces.

Because of low usage the treatment room is replaced by a special bathroom in which treatments can on occasions be carried out. Linen is stored in the preparation room. A pantry is provided close to the nurse working rooms, on the assumption that central plating and dish-washing services are available and the function of the pantry is restricted to the preparation of beverages etc.

Third

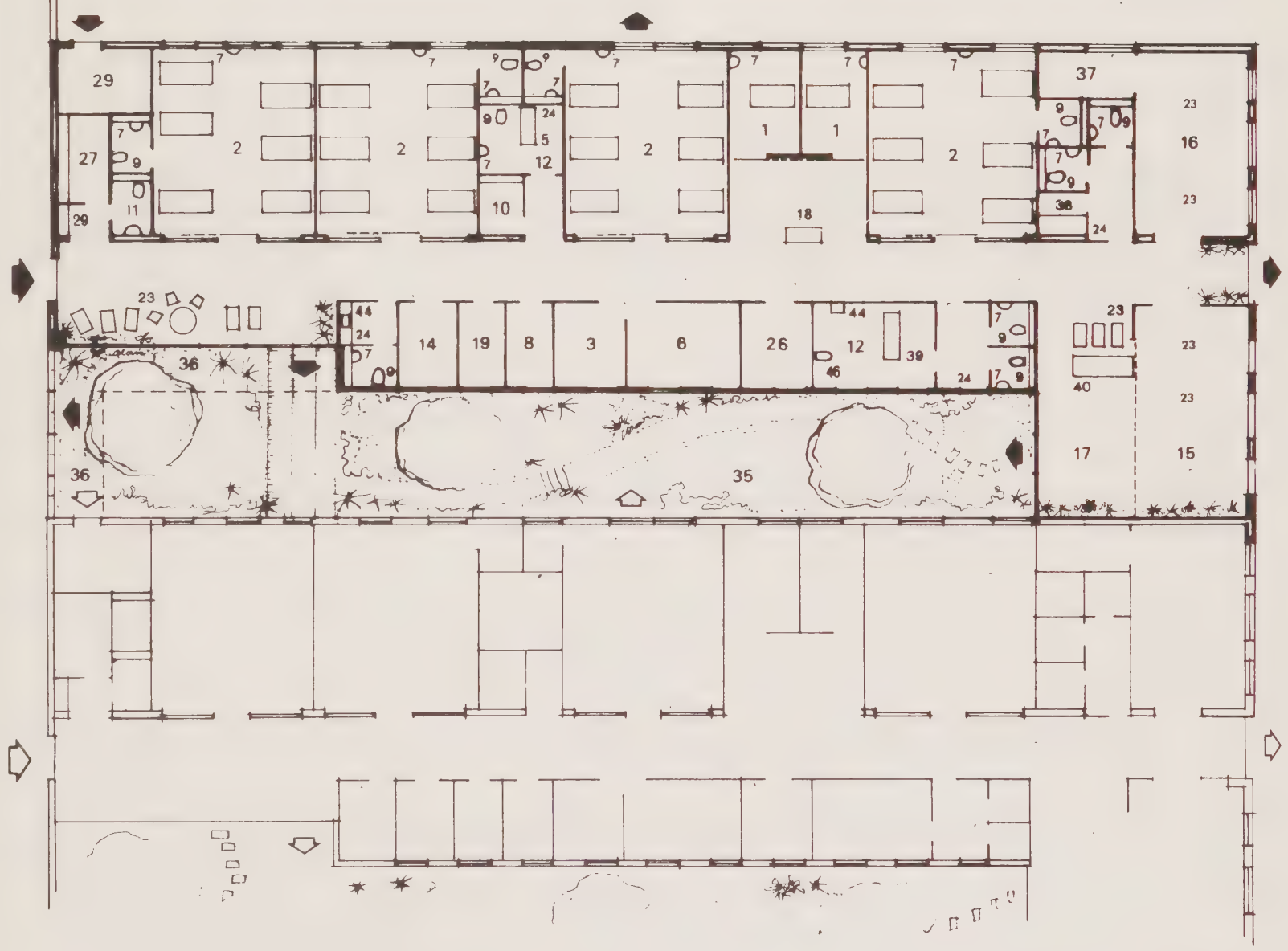
Patients are accommodated in enclosed single and multi-bed rooms with a full glazing strip 1.30m to 1.90m above floor level, thus

A



1939

BEFORE



AFTER

1973

0 5 10 20 30 metres

matching the level of visual and auditory privacy offered in new wards. Each patient has a wardrobe within his curtained bed area and there is a staff wash-hand basin in each room. In addition to the normal provision in the bed areas, day areas, quiet and noisy, are provided on the basis of 2.25m^2 per patient.

Fourth

The normal bathroom is increased to 9.30m^2 to accommodate a WC. A special bathroom at 16.75m^2 with a washing couch, a combined WC and bidet and a 'Belfast' sink is substituted for a treatment room proper. A shower with adequate dry area is available. A 2.40m wide corridor readily accommodates wheelchair traffic and manoeuvring of beds, while providing exercise space for the ambulant patient. An additional WC and wash-hand basin are provided to facilitate the summer use by patients of the landscaped courtyard.

Fifth

It is estimated that not less than half the total number of patients require dining facilities and provision is made on the basis of 1.5m^2 per person. The day and dining spaces are separated by folding screens but may be opened up to form one open space when required. The dining space has access to the landscaped courtyard.

Additional

Windows to the day and dining spaces are glazed to floor level. Any horizontal mullions are so positioned to avoid interference with patients' vision when sitting or standing. Various windows have been built up or walls slapped out to form the new corridor/bed areas wall.

The heating system is modified to suit the conversion. The whole unit is re-wired and re-decorated. There are new bedhead services, new lighting and a new floor finish. Stain resistant carpeting is fitted throughout the day and dining spaces.

MULTI-STOREY

To carry out a major conversion in this typical upper floor ward without any extension to the building leads to a severe restriction in the bed area available, which in itself would be enough to render it unacceptable in very many cases; as however it is the total overall geriatric requirement that is important, bed numbers as stated previously are not critical.

The basic principles underlying the design are as follows:-

First

A total of 22 beds has been achieved by a compromise of some 10% reduction in the nurse working areas. Six single bed rooms have been provided; 4 only have shared attached WC facilities, 2 being reserved for ill patients who, it is expected, will be bedfast. The remaining bed complement is made up with four 4-bed rooms. It is intended that patients requiring more intensive nursing care should be grouped in the two single and one multi-bed rooms on either side of sister's room.

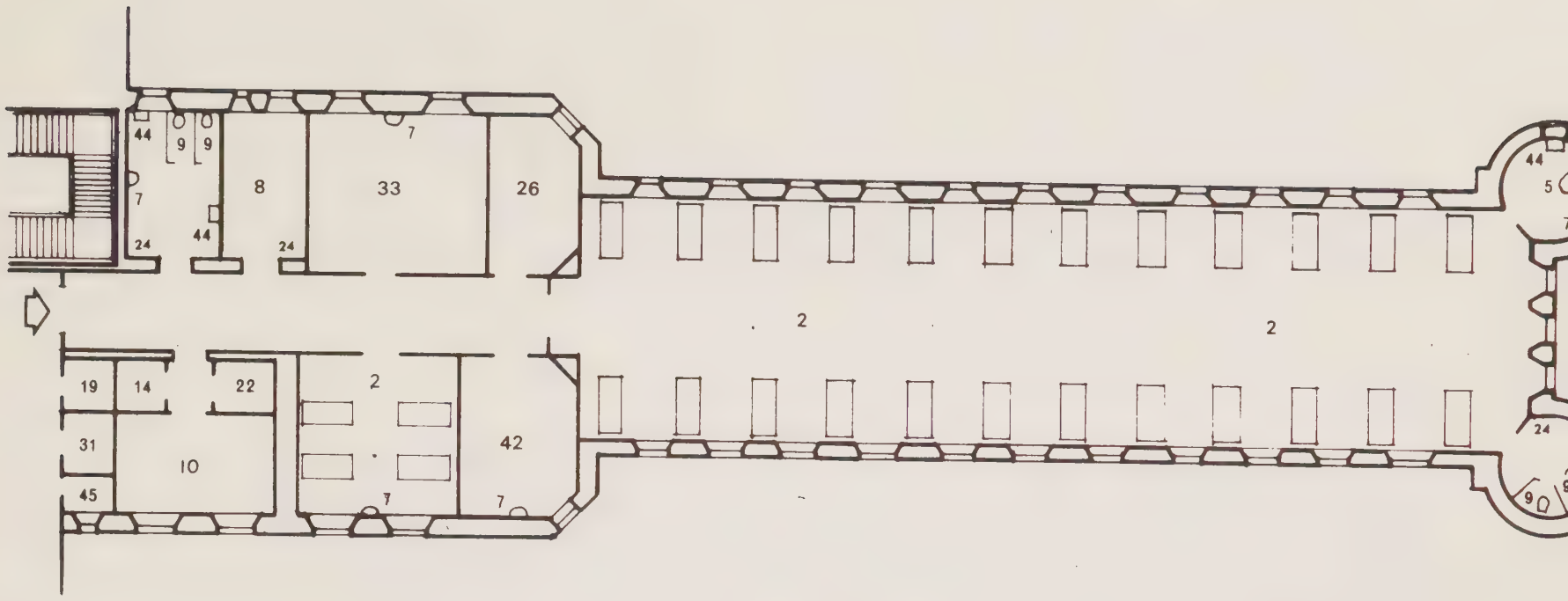
Second

The essential nurse working rooms are concentrated round the nurses' station. It has not been possible to include a small pantry with this group and a kitchen has been placed adjoining the dining area. This kitchen is large enough to accommodate the food trolley when serving, thus keeping the main corridor uncluttered. Because of the low requirement for a treatment room in geriatric nursing, no treatment room has been provided and the area re-allocated as a special bathroom, which can on occasion be used for treatments. On the assumption that the doctor will be provided with a central base the doctor's room has also been omitted.

Third

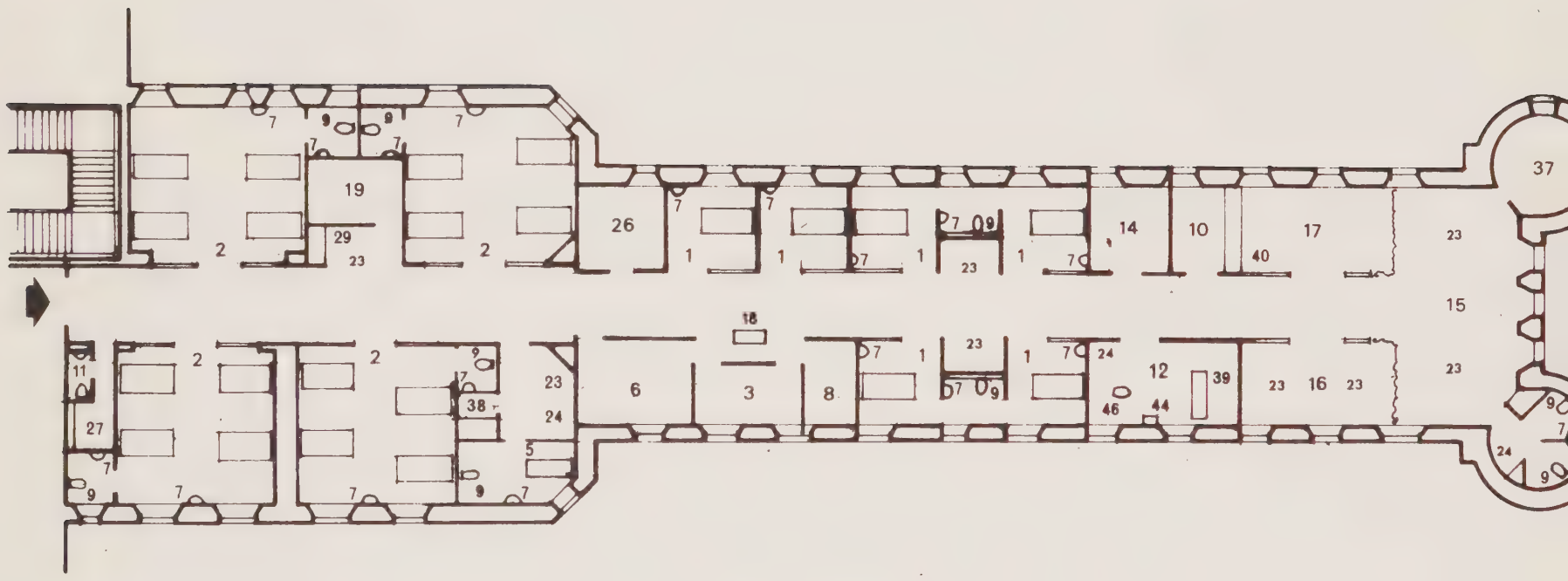
All single and multi-bed rooms are provided with a full glazing strip in the corridor wall 1.30m to 1.90m above floor level, and each room contains a staff wash-hand basin. Each patient has a wardrobe within his room or bed curtained area. Geriatric patients are encouraged to be up and about and are likely to be so, consequently the location of the day and dining spaces combined with the grouping of the bedfast patients round sister's room near the nurse working rooms, help to reduce the sources of noise to the ill patients. Day space divided into general and quiet areas, is provided on an overall area basis of 2.25m^2 per person.

B



1879

BEFORE



1973

AFTER

0 5 10 20 30 40 me

Fourth

The sanitary facilities are convenient to the bed areas and within 9.00m - 12.00m of the day areas. An enlarged bathroom of 9.30m^2 to include a WC, a shower with dry area and a special bathroom of 16.75m^2 (in lieu of a treatment room) with washing couch, combined WC and bidet, and 'Belfast' sink are provided. A 2.40m wide corridor readily accommodates wheelchair traffic and manoeuvring of beds, while providing exercise space for the ambulant patient.

Fifth

It is estimated that not less than half the total number of patients require dining facilities and provision is made on the basis of 1.50m^2 per person. The day and dining spaces are separated by folding screens but may be opened up to form one open space when required.

Sixth

Space for storing wheel and sani-chairs, walking aids etc is provided in the ward store, the special bathroom, a parking bay outwith the DSR and close to the single rooms.

Additional

Additional windows glazed to floor level have been formed in the main day space to provide the required standard of daylighting. In one of the 4-bed rooms two windows have been slapped into one (sill height approximately 1 metre) for similar reasons. No other changes have been made to the remaining windows.

The heating system is modified to suit the conversion. The whole unit is re-wired and re-decorated. There are new bedhead services, new lighting and a new floor finish. Stain resistant carpeting is fitted throughout the day and dining spaces.

CHAPTER 5 : COST

5.1 The approximate cost of converting the two hypothetical wards has been investigated and the estimates are shown in Tables 1 and 2. These costs are intended for general guidance only; the range of costs involved in different buildings and different solutions could be very wide indeed.

5.2 The cost estimates exclude the following:-

Maintenance work
Work outwith the ward (apart from site layout to the courtyard in Ward A and local drainage work)
Loose furniture, fittings and equipment
Professional fees

Consequently the cost of these items would require to be added to arrive at the total cost of any scheme.

5.3 In considering the standard of conversion thought possible or desirable in individual cases two approaches are possible, either:-

1 to decide the best standard which can be achieved with the particular building and then cost it

or

2 to decide what money is available and to investigate the possible alternative improvements which can be carried out within this expenditure limit.

Although the first and ideal approach may be in accordance with 1 above, it is likely that the eventual solution will be a compromise.

5.4 Running costs are not dealt with in this report, but they are annually very significant in comparison with the capital cost of a reasonable standard of upgrading. The effectiveness of any conversion scheme must therefore be very carefully evaluated; it would be unfortunate to place such undue emphasis on limitation of capital expenditure as to result in a solution which was inordinately expensive to run.

5.5 The conversion of a ward may have serious repercussions on central hospital facilities and services. In particular engineering service mains outwith the physical limits of the ward require appraisal for adequacy and expectation of life.

5.6 These issues, which are not dealt with in this report, can be very far-reaching in their cost implications and should normally be the subject of a separate review and separate cost estimates. When examining the suitability of a particular ward

for conversion, a careful check is necessary to ensure that none of these implications has been overlooked, and that provision for any costs involved has either already been made for the requisite period or is included in the ward budget as a separate issue.

5.7 As in all alteration work, no standard formula is practicable for ward conversion projects and each scheme must be costed on its own merits. Although it is hoped that the two hypothetical schemes examined in this report may provide a starting point for financial decisions, it cannot be over-emphasised that apparently minor differences in one building in comparison with another may have a major influence on the feasibility and cost of any conversion.

5.8 The larger hospitals will often have a number of identical wards requiring conversion; costs of maintenance and work outwith the ward will require individual consideration in each case, but the conversion costs to similar standards should be comparable in repetitive buildings. It would therefore appear sensible in each such hospital to prepare alternative proposals and costs in some detail for a pilot ward and thus to establish the range of costs for different standards. These costs, adjusted for different issues of maintenance and work outwith the ward, and updated for changes in building costs over the intervening period, should give useful guidance for budgeting in the future and should enable Health Boards to decide broadly the standards they can afford.

5.9 Where identical wards are found in several hospitals, arrangements should be made for initial studies to be undertaken with a view to their general application.

TABLE 1

SUMMARY OF COST ESTIMATES

Note: The basis of costing is fixed price tendering levels at July 1973 in the Central Scotland Area

WARD A

	Existing building	New extension	Total		Total per bed	Total per sq m
	£	£	£	%	£	£
Preliminaries and contingencies	-	-	12,250	17	471	19-14
Structure	5,850	10,800	16,650	23	641	26-01
Partitions	2,850	1,800	4,650	6	179	7-26
Finishes	5,900	5,050	10,950	15	421	17-11
Fittings	-	-	3,000	4	115	4-69
Services	-	-	22,900	32	881	35-78
Externals	-	-	2,000	3	77	3-13
Total	-	-	72,400	100	2,785	113-12

WARD B

	Total		Total per bed	Total per sq m
	£	%	£	£
Preliminaries and contingencies	9,900	17	450	17-52
Structure	9,300	16	423	16-46
Partitions	4,600	8	209	8-14
Finishes	10,250	18	466	18-14
Fittings	3,200	5	145	5-66
Services	20,750	35	943	36-73
Externals	500	1	23	0-89
Total	58,500	100	2,659	103-54

TABLE 2

DETAILED COST ESTIMATES: WARD A

Notes: 1 The basis of costing is fixed price tendering levels at July 1973 in the Central Scotland Area

2 Services' costs marked with an asterisk provided by Scottish Development Department; all other costs provided by Quantity Surveyor

	Before upgrading	After upgrading
Floor area:		
Existing building		350 sq m
New extension		290
Total	350 sq m	640 sq m
Number of beds	27	26

	Total	per bed	per sq m
	£	£	£
Preliminaries and contingencies			(÷ 640 sq m)
Preliminaries (17½%)	10,500	404	16-41
Contingencies (2½%)	1,750	67	2-73
Total	12,250	471	19-14

	Total	per bed	per sq m
	£	£	£
Structural elements etc - existing building			(÷ 350 sq m)
Demolition of internal partitions, slapping new openings and building up existing openings in external walls, stripping out existing floor finishes, etc., making good floors, plaster repairs at alterations, "Sandtex" or equivalent finish to existing harled walls	5,150	See Table 1	14-71
External doors and windows to new external openings (note: assumed that existing windows are not replaced and that they can provide suitable natural ventilation)	700	"	2-00
Total	5,850	"	16-71
Partitioning elements - existing building			(÷ 350 sq m)
Lightweight block partitions, glazed observation screens	1,300	See Table 1	3-71
Internal doors	1,550	"	4-43
Total	2,850	"	8-14

	Total	per bed	per sq m
	£	£	£
Finishing elements - existing building			(÷ 350 sq m)
Wall finishes (to new partitions) mainly plaster, but some mosaic, vinyl sheeting and vinyl wall-paper; protection rails, etc. (Note: plaster repairs to existing walls costed elsewhere)	1,900	See Table 1	5-43
Floor finishes vinyl sheeting or "Flotex" carpet or equivalent, vinyl skirtings	1,350	"	3-86
Ceiling finishes acoustic tile suspended ceilings throughout	1,750	"	5-00
Decorations	900	"	2-57
Total	5,900	"	16-86
Structural elements - new extension			(÷ 290 sq m)
Work below ground floor level	3,600	See Table 1	12-41
Steelwork	500	"	1-72
External walls cavity brickwork, harling and "Sandtex" or equivalent finish, p.c. sills, etc	1,600	"	5-52
External doors and windows	2,200	"	7-59
Roof construction and roof coverings - flat roof finished with bituminous felt roofing	2,900	"	10-00
Total	10,800	"	37-24

	Total	per bed	per sq m
	£	£	£
Partitioning elements - new extension			(÷ 290 sq m)
Loadbearing and lightweight block partitions, glazed observation screens	900	See Table 1	3-10
Internal doors	900	"	3-10
Total	1,800	"	6-20
Finishing elements - new extension			(÷ 290 sq m)
Wall finishes mainly plaster, but some vinyl sheeting and vinyl wallpaper, etc	1,750	See Table 1	6-03
Floor finishes vinyl sheeting or "Flotex" carpet or equivalent, vinyl skirtings	1,100	"	3-79
Ceiling finishes acoustic tile suspended ceilings throughout	1,450	"	5-00
Decorations	750	"	2-59
Total	5,050	"	17-41
Fitting elements			(÷ 640 sq m)
Curtain tracks to beds and windows; mirrors, shelving, sundries; worktop fitments in preparation, disposal and sluice rooms; storage cupboards, etc. (Note: curtains, patients' wardrobes and nurses' station desk fitment excluded)	3,000	115	4-69
Total	3,000	115	4-69

	Total	per bed	per sq m
	£	£	£
Services elements			(÷ 640 sq m)
Note: costs assume complete renewal of services within the ward, but exclude storage tanks, calorifiers, and alterations to existing services outwith the ward			
Rainwater plumbing modification of existing plumbing; new plumbing for extension	250	10	0-39
Sanitary fittings and wastes, etc. 10 WCs, 19 WHBs, 2 combined bidet/ WCs (provisional sum £150 each), 1 bath, 1 shower fitting, 5 SS sinks, 1 fireclay slop sink; wastes; plumber's hot and cold water pipework in final connections to sanitary fittings (Note: special washing couch excluded)	3,150	121	4-92
Hot and cold water services (excluding plumber's "final pipework")	7,250*	279	11-33
Heating services based on provision of continuous wall-mounted convector units with additional units as required)			
Mechanical extract ventilation to internal rooms, toilets and bath areas - £700, to "deep plan" areas - say £1,000	1,700*	65	2-66
Steam, medical gases and vacuum are excluded	-	-	-
Electrical services, including lighting to normal standards in multi-bed rooms and of a more domestic character in single rooms and dining and day areas; socket outlets as required; supplies to fixed equipment; bedhead units with nurse call and radio connections only; telephones; modest provision for fire detection and fire alarms	8,300*	319	12-97
Carry forward	20,650	794	32-27

	Total	per bed	per sq m
	£	£	£
Brought forward	20,650	794	32-27
Fixed equipment			
Bedpan destructor, small electric cooker, refrigerator and kettle for beverages, etc; fire hosereel; electric clocks in day area and adjacent to nurses' station; electric fire in day area	750*	29	1-17
Builder's work in connection with services, including stripping out existing services	1,500	58	2-34
Total	22,900	881	35-78
External works elements			(÷ 640 sq m)
Drainage new drains from new soil, waste and rainwater pipes, and modifications to existing drains - provisional sum	1,000	38	1-56
Site layout, planting and paving - provisional sum	1,000	39	1-57
Total	2,000	77	3-13

DETAILED COST ESTIMATES: WARD B

Notes: 1 The basis of costing is fixed price tendering levels at July 1973 in the Central Scotland Area

2 Services' costs marked with an asterisk provided by Scottish Development Department; all other costs provided by Quantity Surveyor

	Before upgrading	After upgrading
Floor area	565 sq m	565 sq m
Number of beds	28	22

	Total £	per bed £	per sq m £
Preliminaries and contingencies			
Preliminaries (17½%)	8,500	386	15-04
Contingencies (2½%)	1,400	64	2-48
Total	9,900	450	17-52
Structural elements etc			
Demolitions of internal walls and partitions, new steel beams to support walls and partition above, slapping new openings, building up existing door openings, stripping out existing ceilings, floor finishes, etc, making good flooring, plaster repairs at alterations, etc	9,000	409	15-93
New screen and doors at entrance to ward from main corridor (Note: assumed that existing windows are not replaced and that they can provide suitable natural ventilation)	300	14	0-53
Total	9,300	423	16-46

	Total £	per bed £	per sq m £
Partitioning elements			
Lightweight block partitions, glazed observation screens	2,200	100	3-89
Internal doors	2,400	109	4-25
Total	4,600	209	8-14
Finishing elements			
Wall finishes (to new partitions) mainly plaster, but some glazed wall tiles, mosaic, vinyl sheeting and vinyl wallpaper; protection rails, etc. (Note: plaster repairs to existing walls costed elsewhere)	3,850	175	6-81
Floor finishes vinyl sheeting or "Flotex" carpet or equivalent, vinyl skirtings	2,150	98	3-81
Ceiling finishes acoustic tile suspended ceilings throughout	2,850	129	5-04
Decorations	1,400	64	2-48
Total	10,250	466	18-14
Fitting elements			
Curtain tracks to beds and windows; mirrors, shelving, sundries; worktop fitments in preparation, disposal and sluice rooms; storage cupboards, etc. (Note: curtains, patients' wardrobes and nurses' station desk fitment excluded)	3,200	145	5-66
Total	3,200	145	5-66

	Total	per bed	per sq m
	£	£	£
Services elements			
Note: costs assume complete renewal of services within the ward, but exclude storage tanks, calorifiers, and alterations to existing services outwith the ward			
Rainwater plumbing - Nil (assumed that existing system remains without alteration)	-	-	-
Sanitary fittings and wastes, etc 9 WCs, 21 WHBs, 2 combined bidet/ WCs (provisional sum £150 each), 1 bath, 1 shower fitting, 5 SS sinks, 1 fireclay slop sink; wastes; plumber's hot and cold water pipe-work in final connections to sanitary fittings (Note: special washing couch excluded)	3,250	148	5-76
Hot and cold water services (excluding plumber's "final pipework")	)		
Heating services based on provision of radiators) in window bossings (builder's work cost allows for screening to avoid accidental contact	) 6,400*	291	11-33
Mechanical extract ventilation to internal rooms, toilets and bath areas only (assumed that existing opening windows can provide suitable natural ventilation)	500*	23	0-88
Steam, medical gases and vacuum are excluded	-	-	-
Carry forward	10,150	462	17-97

	Total	per bed	per sq m
	£	£	£
Brought forward	10,150	462	17-97
Electrical services, including lighting to normal standards in multi-bed rooms and of a more domestic character in single rooms and dining and day areas; socket outlets as required; supplies to fixed equipment; bedhead units with nurse call and radio connections only; telephones; modest provision for fire detection and fire alarms	7,350*	334	13-01
Fixed equipment Bedpan destructor, small cooker, refrigerator and kettle for beverages etc; fire hosereel; electric clocks in day area and adjacent to nurses' station; electric fire in day area	750*	34	1-33
Builder's work in connection with services, including stripping out existing services	2,500	113	4-42
Total	20,750	943	36-73

External works elements

Drainage short runs connecting new soil and waste pipes to existing drains (provisional sum)	500	23	0-89
Total	500	23	0-89

APPENDIX I
WARD 1

A two-storey stone building of traditional construction, a former poor house: 26 beds before upgrading, 27 beds thereafter.

The upgrading carried out in 1968 was more a re-allocation of function rather than a structural alteration. The building work involved the creation of further bed accommodation at the expense of an existing day space, the re-siting of linen storage outwith the ward area, the re-positioning and re-hanging of doors and the fixing of cubicle curtain track. Various rooms were re-designed or sub-divided but no addition or external change was made to the existing building. The existing drainage layout was a major factor in the restriction of room re-allocation.

General comment

1 No storage eg wardrobes, was provided within the bed areas for the patient's personal clothing

2 Patients could not see out of the windows of either day space or bed areas because of obscure glazing to lower sections of windows

3 WC compartments which were too small in area and lacked hand-rinse basins made assisted toileting difficult both for patient and nurse. In particular the provision of only one inadequate WC compartment, 1.20m wide x 2.90m long adjoining the day room meant that most patients had to travel or be transported the entire length of the unit, 56.00m

4 The narrow corridors, 1.50m wide, caused congestion

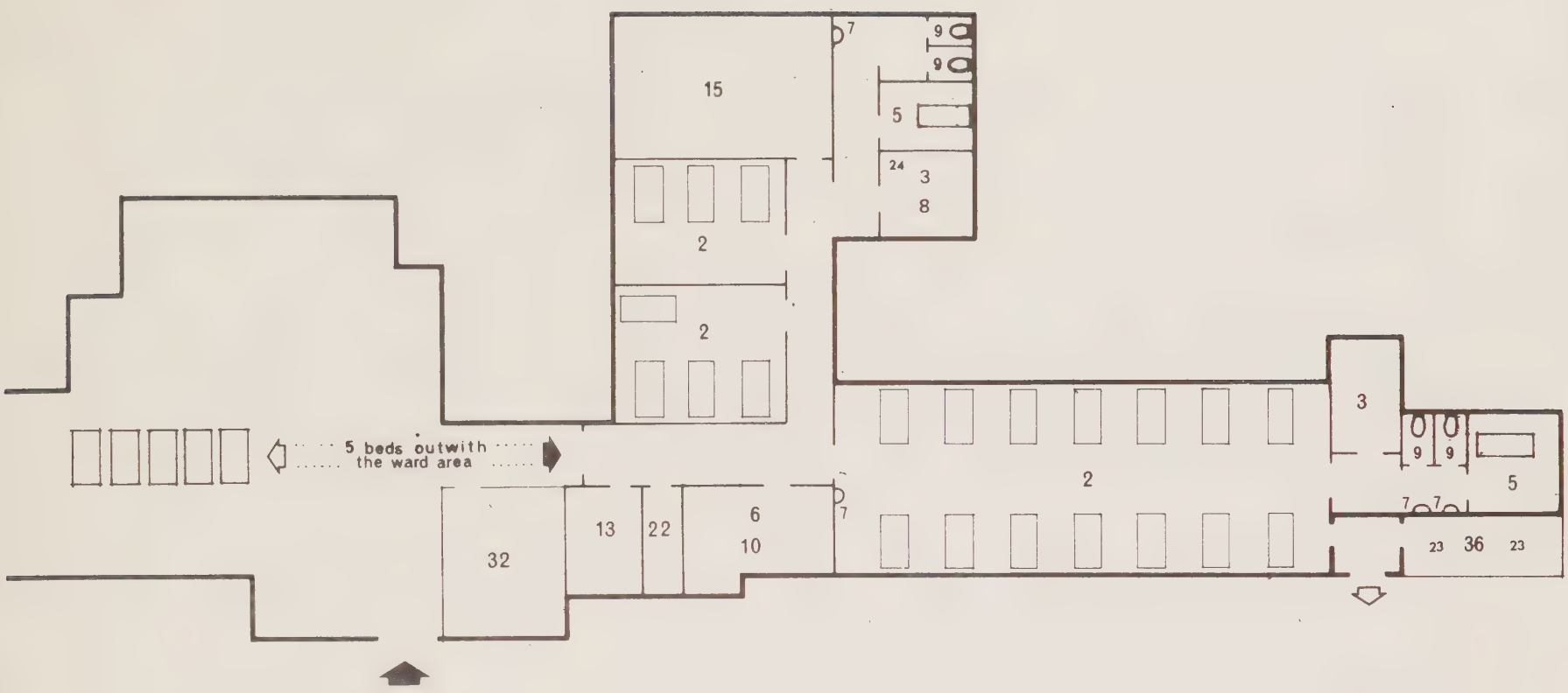
5 There was excessive travel distance within the unit, eg between dayroom and nurse working rooms, 56.00m

6 Nursing organisation was made difficult by the lack of a nursing station

7 Linen storage located 32.00m from the nurse working rooms, resulted in nursing staff creating trolley sub-storage at point-of-use

8 The lack of a domestic service room resulted in various rooms and corridor spaces being used for storage of domestic equipment, eg sluice and sister's office

9 Lack of a proper treatment room led to inadequate ad hoc alternatives.



1890

BEFORE

1968

AFTER

WARD 2

An EMS-type ward, brick construction, roof trusses at one time supported by 340 x 340mm (1'1½" x 1'1½") brick piers; these had been removed in the process of upgrading and replaced by 100mm (4") diameter mild steel columns treated with aluminium paint for maintenance purposes.

The upgrading, 28 beds before and 25 after, consisted of the creation of two single rooms at the entrance to the general bed area and the removal of the existing patients' WCs, etc to the new day area blister located, adjoining a nursing station, on one side of and half way down the ward length.

As drainage and services are peripheral in this type of ward, no restriction was encountered in the location of baths, WCs etc.

General comment

1 Patients could not see out of the windows of the bed areas because of obscure glazing to lower sections of windows

2 The main bed area was congested during meal times

3 The nursing station was in a draughty position, and observation of patients was severely restricted by the high 'pigeon hole' feature of the desk design

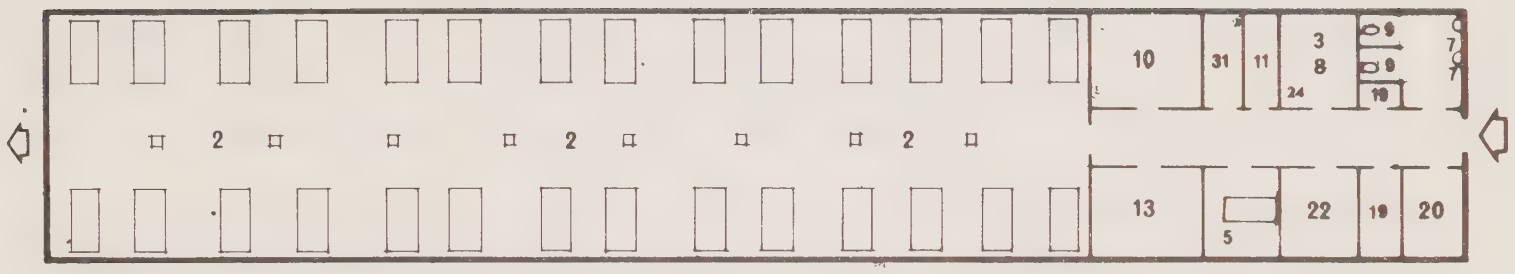
4 The dayroom was not used to the extent it could have been. The day area only was carpeted. Incontinent patients were restricted to the vinyl floored dining area

5 The sluice lacked permanent ventilation and the resultant smells caused offence to staff and patients moving from the bed area to the dining area

6 Patients' clothing was kept in a communal store adjoining the nurse working rooms

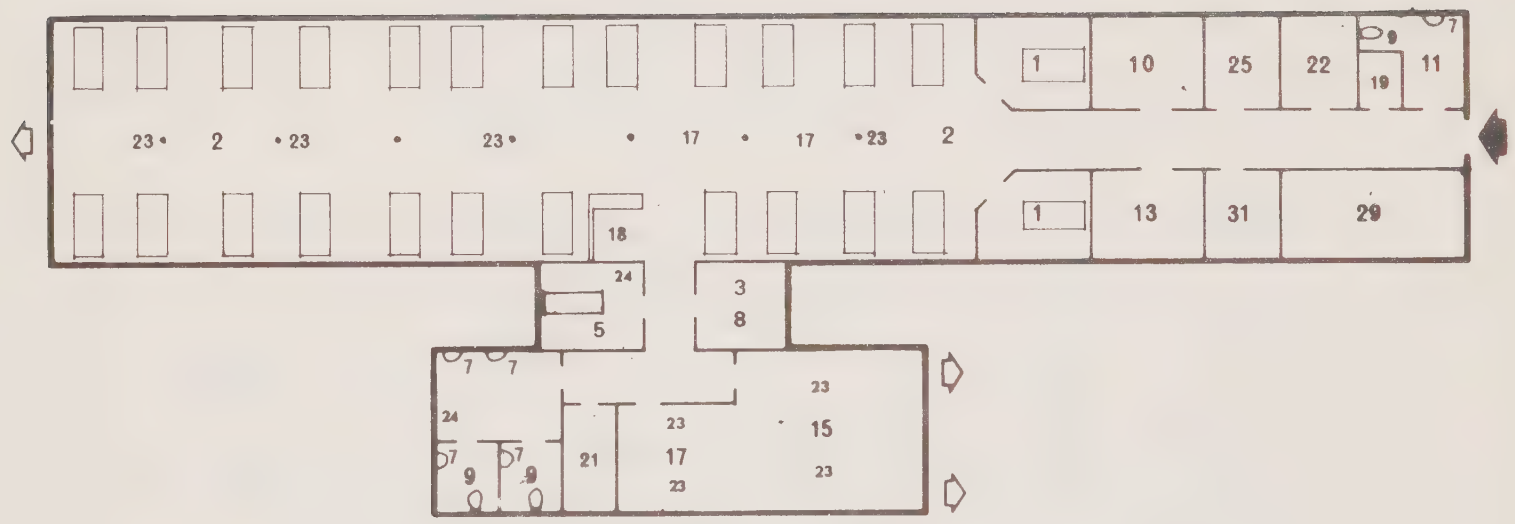
7 WC compartments, 1.70m wide x 2.10m deep were suitable for assisted toileting, but located too far from the bed area

8 The linen store, also located too far, 24.50m, from the bed areas, resulted in nursing staff creating trolley sub-storage at point-of-use.



1940

BEFORE



1970

AFTER

0 5 10 20 30 40 metres

WARD 3

A traditional building, two storeys in height constructed in granite. The upgrading, with no change in bed numbers, consisted primarily of the addition of a sanitary annexe at the opposite end of the ward to the entrance, the annexe had been erected in traditional construction utilising re-constituted stone to match the existing building. Drainage was again the major controlling factor. No attempt had been made either to provide a day space or reveal the surrounding landscape to the patients.

The annexe provided four WCs (two only with hand-rinse basins within the compartment), two hand-rinse basins for wheelchair patients, a shower for use with wheelchair, two bathrooms with WC provision within the bathroom compartment, general storage plus wheelchair/sani-chair bay..

A staff cloakroom had been provided; this was located outwith the area studied and was shared with an adjoining ward.

General comment

1 The position of the sanitary annexe in relation to the bed areas was such that few patients could reach it unaided. Patient movement was further handicapped by the tendency to park trolleys in the corridors adjoining the preparation, linen and kitchen areas

2 The lack of a dayroom was a decided disadvantage to patients and staff. An area which might have provided a limited amount of day space was used for storage of equipment

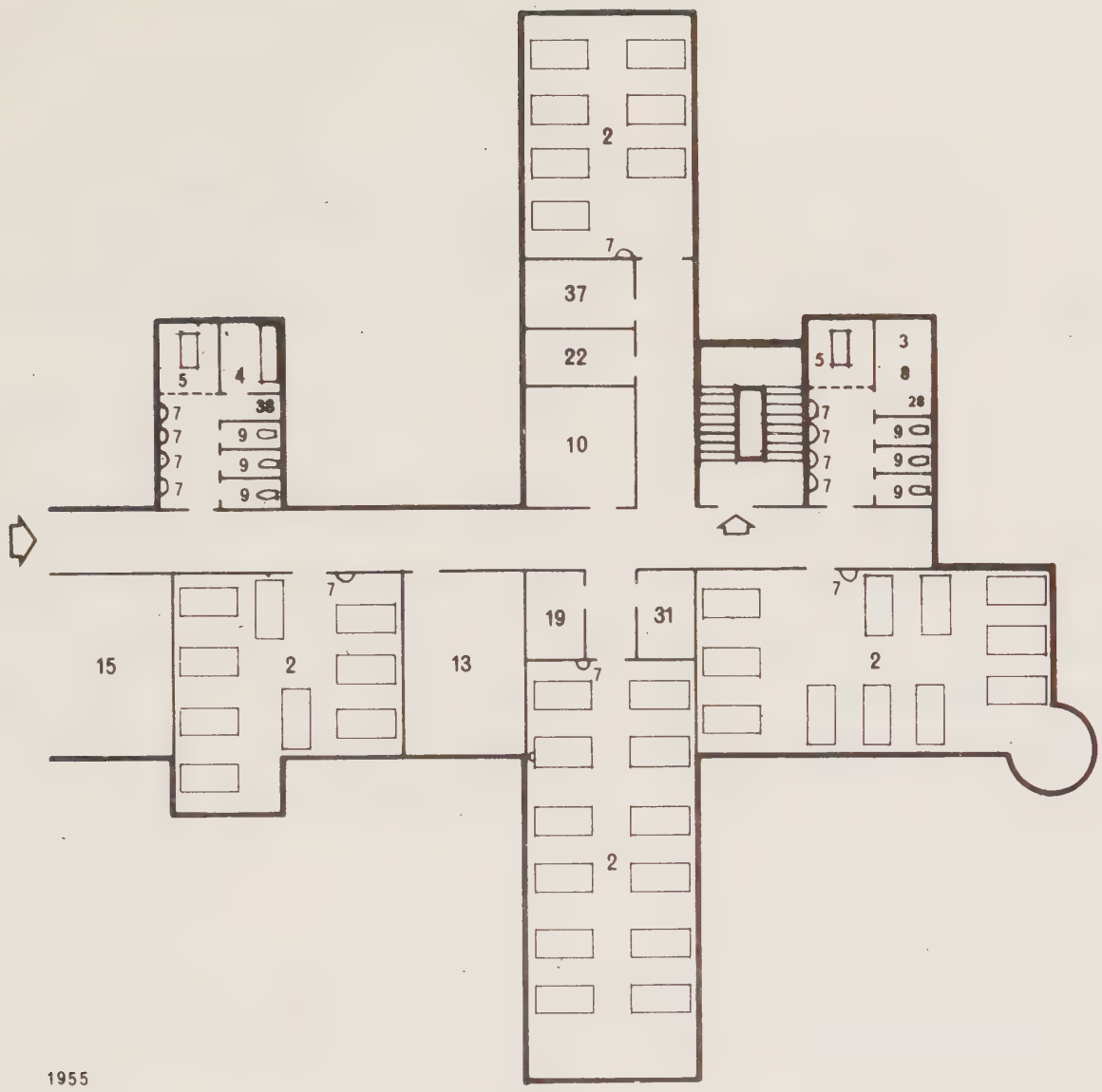
3 Bed spacing at 1.80m centres in some areas resulted in discomfort for patients and cramped working for the nurses

4 Patients' every day clothing was stored in a communal cupboard

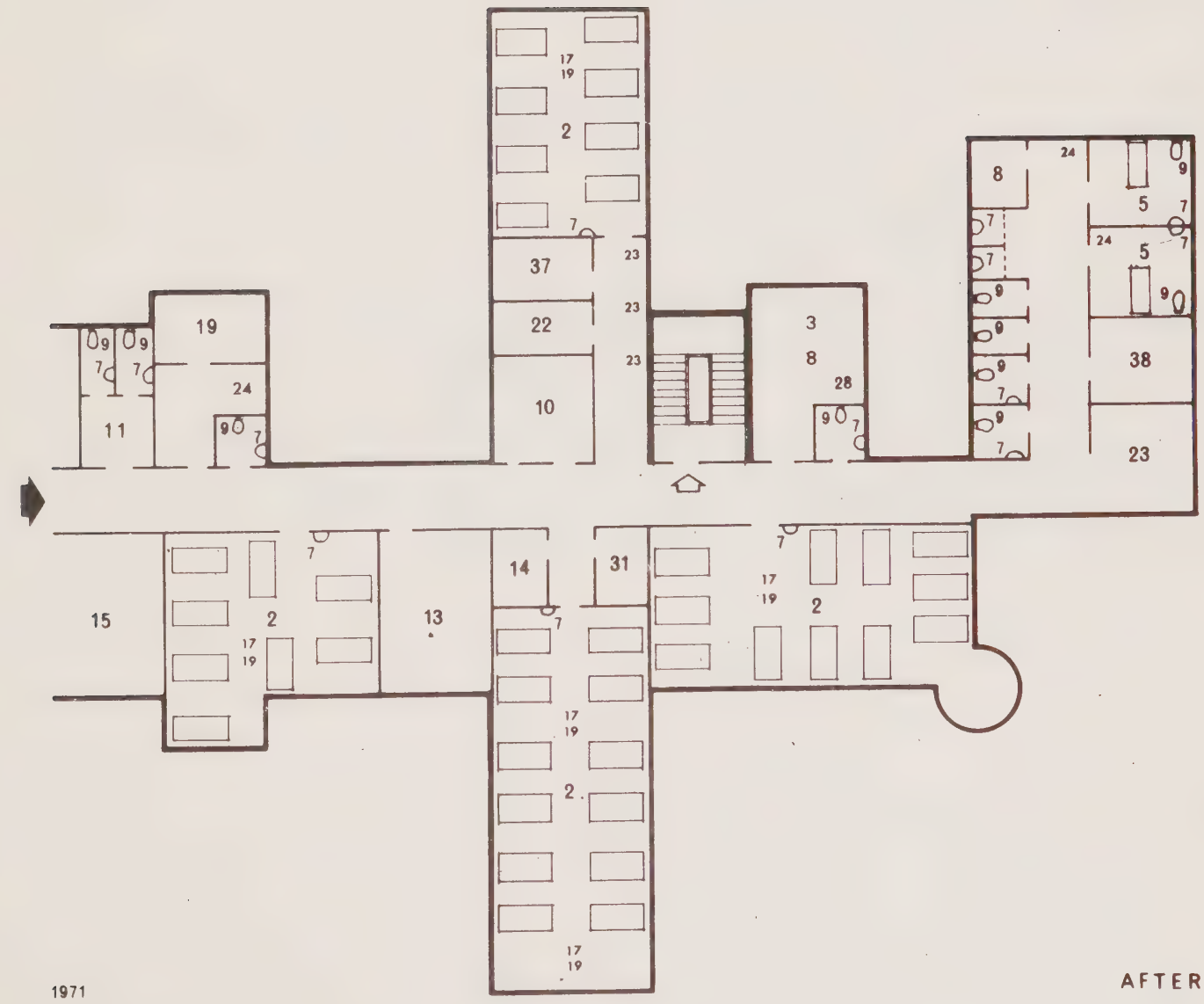
5 An existing WC compartment, opening directly off the main corridor lacked privacy. The new WC compartments for assisted toileting at 3.35m^2 were generous, but toileting was still difficult because of the close proximity of the WC bowl to the adjoining wall on which were positioned patient aid hand rails

6 The provision of a WC bowl in both bathrooms was valued by both patients and staff

7 The privacy provided in the patient wash basin/hair dressing cubicles was appreciated.



BEFORE



AFTER

WARD 4

A large Victorian private house gifted to the local community for use as a hospital for war wounded; in 1919 it continued as a general hospital, becoming subsequently the district maternity home. In the late 1950s the building was converted for geriatric use.

The original house is of traditional timber and stone construction.

The upgrading, 20 beds before and 18 thereafter, was in two stages: initially an extension at ground level only, comprising sanitary facilities and nurse working rooms: this annexe was constructed in 11" cavity brickwork with a flat timber roof sheathed in bituminous felt. In 1958 the entire building was improved in regard to 'means of escape from fire' by the formation of external ramps and metal staircases. To ease patient movement within the building a lift was inserted within the wall of the existing main staircases.

General comment

1 The bed area had been split in two by the location of a combined sluice/disposal room and there was no dayroom

2 Circulation within the unit was by means of either the sluice/disposal room or the main hall of the hospital

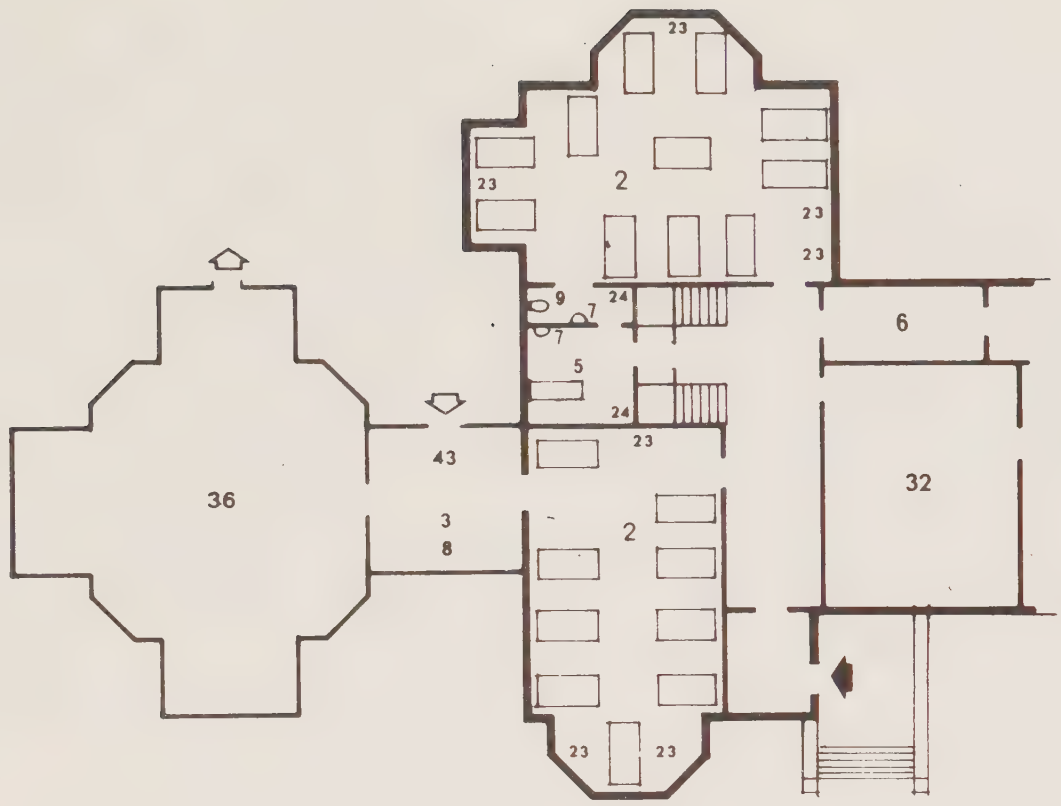
3 Patients' clothing was stored centrally, outwith the ward in the main entrance hall

4 Because this small unit was not served by a regular "topping-up" system two rooms had been provided for bulk storage of linen

5 There was no preparation room

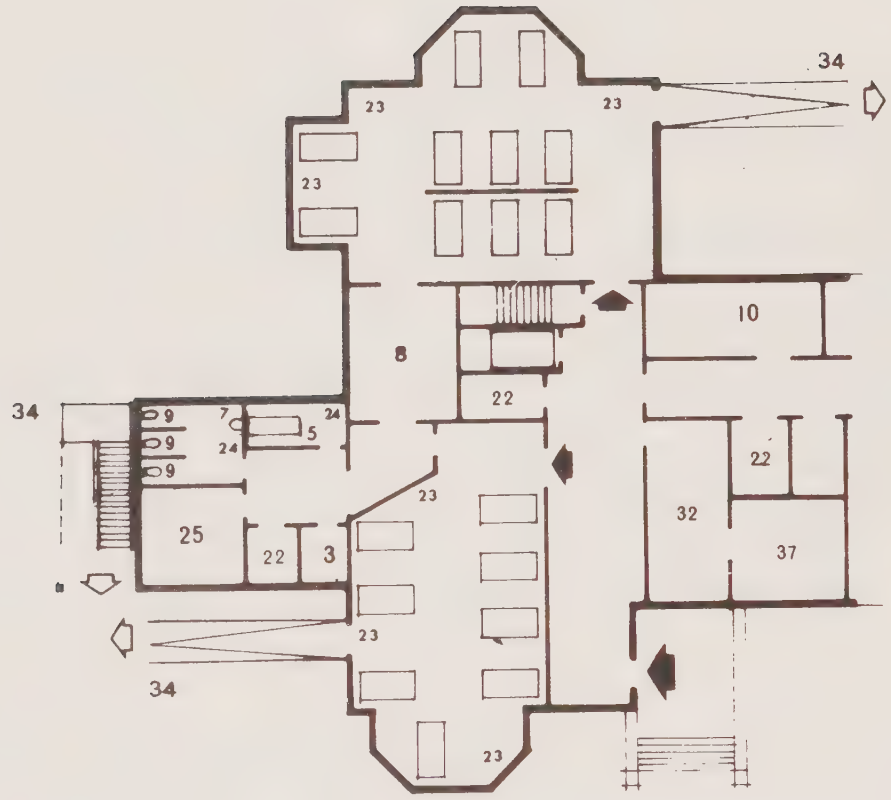
6 The dimensions of the bathroom, 3.20m long x 2.00m wide in relation to the position of the inward opening door precluded the use of a "patient lifting" device

7 The dimensions of the WC compartments, 0.85m x 1.85m, combined with inward opening doors resulted in wheelchair patients being toileted with the doors permanently open.



1914

BEFORE



1960

AFTER

0 5 10 20 30 metres

WARD 5

Part of a two-ward pavilion in an infectious diseases hospital, constructed in 1926, originally 22 beds, after conversion 21. The pavilion is a traditional brick cavity construction with a timber supported slate roof. Floor level is 1.35m above ground level and ramp access has been provided for wheelchairs at both entrance and fire escape doors. Upgrading by way of additional building takes the form of a sanitary annexe at mid-ward directly opposite a combined day area and TV room with attached single WC compartment. This day area had been added to the south facade, adjoining an existing verandah.

Linen storage, domestic service room, general storage, staff and duty rooms plus a kitchen area are shared via a common entrance hall with the adjoining ward.

General comment

1 The existing sub-division of the bed area into three units contributed greatly towards the pleasant domestic atmosphere achieved but unfortunately patients had to dine in the bed areas

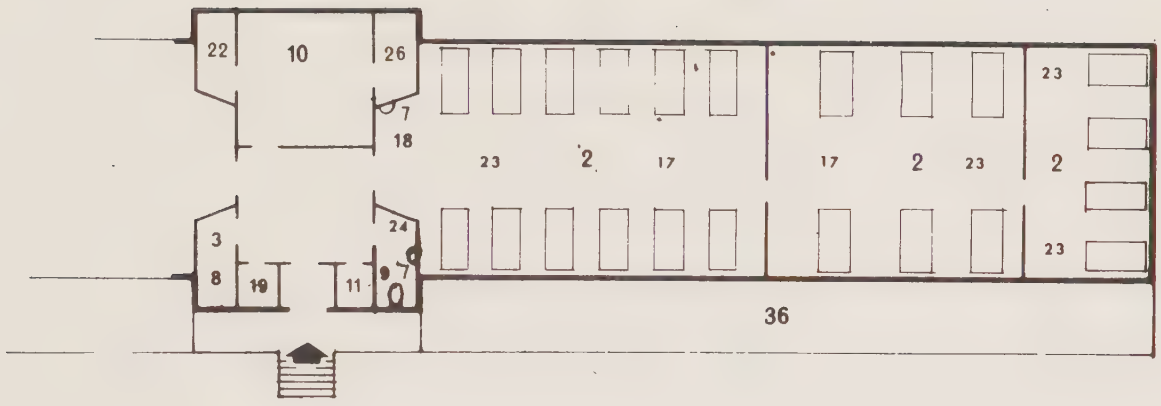
2 The unchanged location of the linen store (shared with the adjoining ward) resulted in trolley storage at point-of-use

3 Lack of space in the bed areas had resulted in patients' clothing being stored in a series of cupboards lining the corridor access to the sanitary annexe

4 The WC compartment opening directly off the day area was without privacy

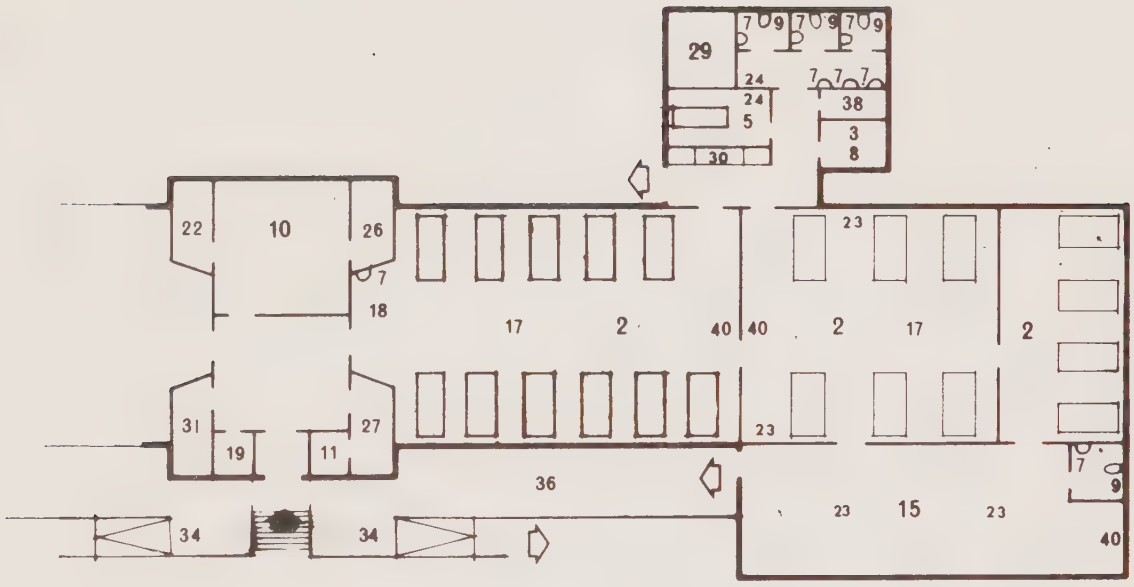
5 The 18.25m travel distance between day area and main sanitary annexe was excessive

6 The WC compartments in the sanitary annexe, although ample in size 1.85m wide x 2.10m deep could not be used by wheelchair patients unless the inward opening doors were kept permanently open.



1926

BEFORE



1971

AFTER

WARD 6

A hospital constructed early in the Great War (1914-1818) to accommodate service casualties. Construction is 11" cavity brickwork harled: the roof has been constructed with light steel angles and the trusses left exposed.

The upgrading, with no change in bed numbers, consists of a shared extension, constructed between a pair of wards and comprising WC, wash basin, bath and wheelchair storage areas for each ward. The day area, sluice, storage, staff WC and DSR were shared with the adjoining ward. The difference between ward floor levels resulting from the site configuration was accommodated in a steepish ramp (1:10) in the access corridor of the extension.

Twin access ramps link the day area with the external landscaped court. Exit from the ward has been retained to the original verandah.

General comment

1 The dayroom at 50.90m^2, designed to be shared between two wards, was being used by one ward only at the time of the survey, and at 2.40m^2 per patient was within recommended standards. When used for two wards the dayroom will be inadequate

2 Patient clothing was stored centrally outwith the section

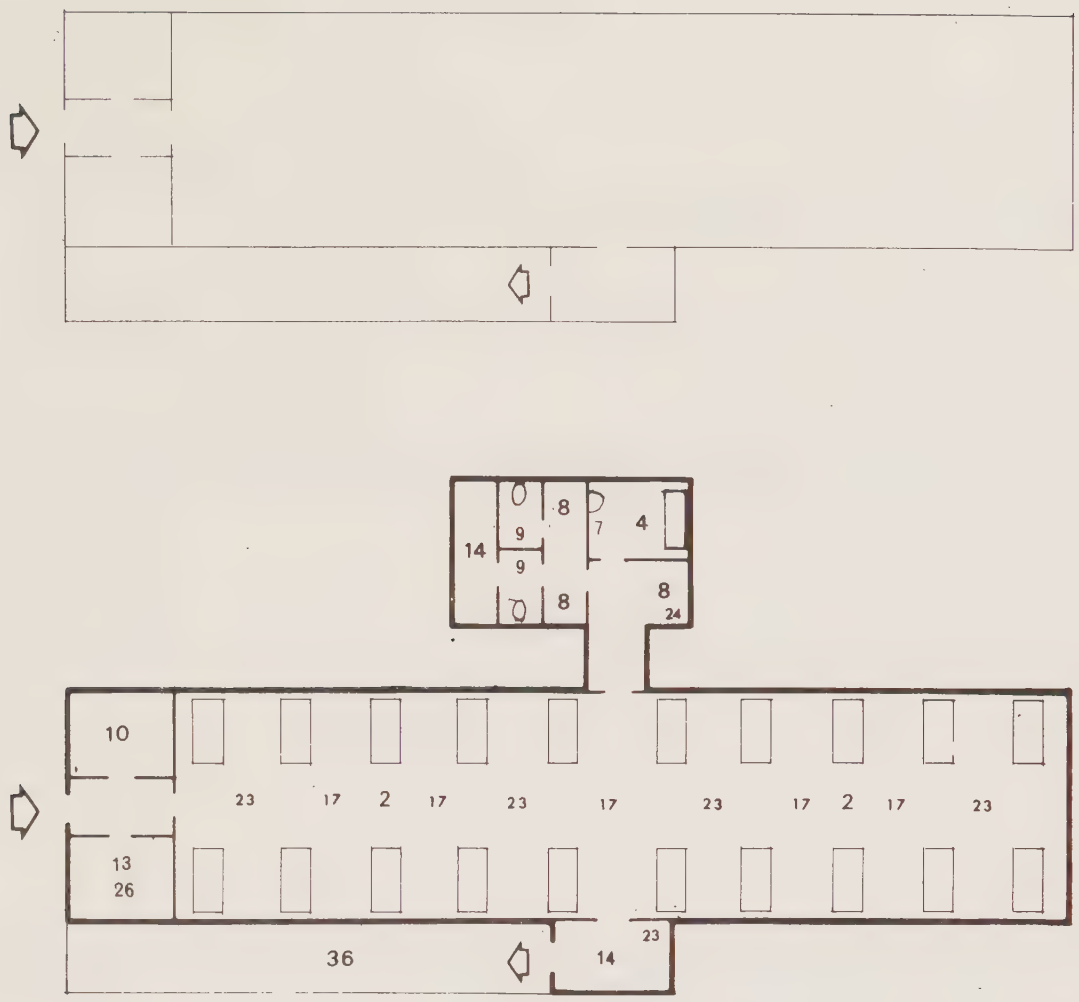
3 There were no dining facilities other than at the bed side

4 Natural overhead lighting to the extension was provided by cupolas. However, ventilation by 'opening lights' set in these cupolas at ceiling level failed because of the difficulties for nursing staff of having to use excessively long window poles to open the 'lights'

5 The wheelchair storage area, though small at 2.30m^2, was well positioned

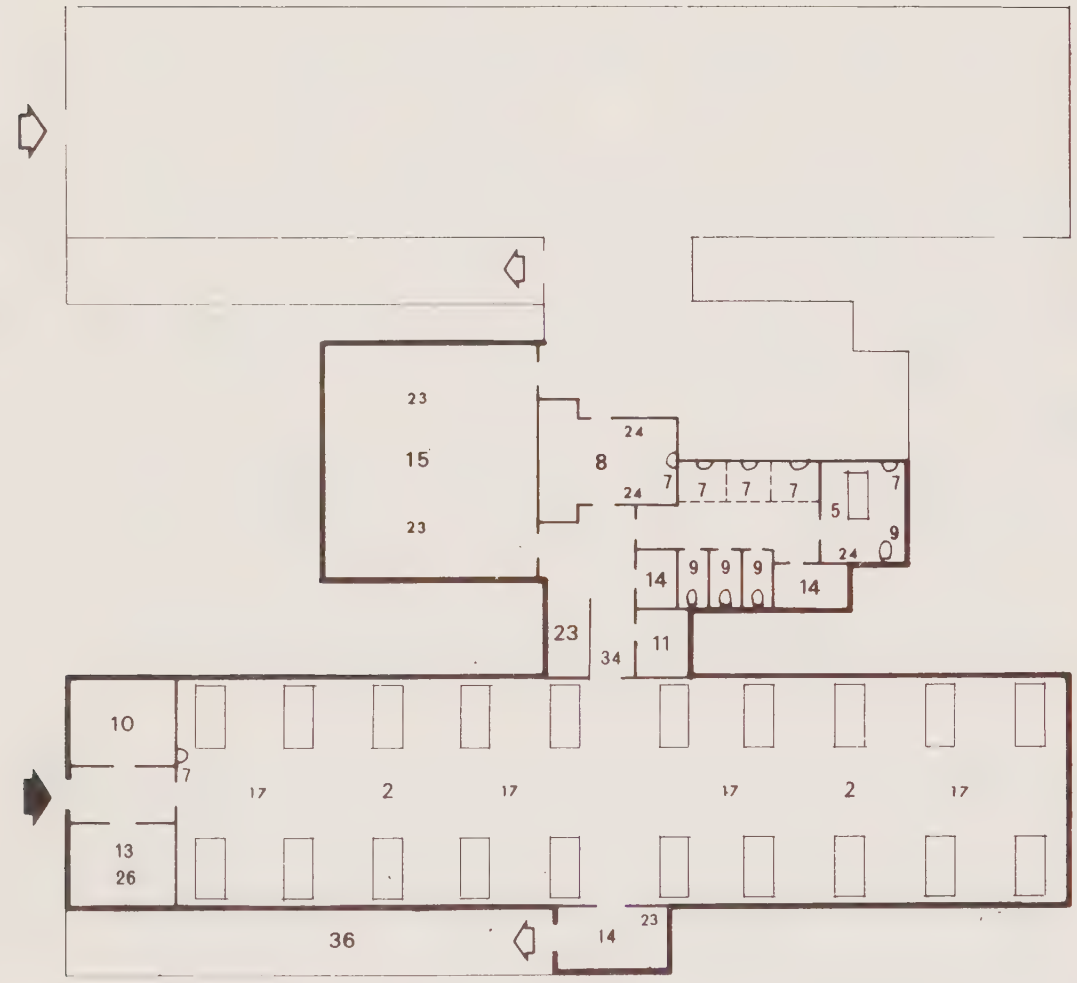
6 The privacy afforded by the curtaining to the free-standing hand-rinse basins was appreciated by both patients and nurses

7 The 'granolithic' finish to the floors in the 'wet' areas, ie WC compartments, sluice etc, and the high standard of general finish combined with a sensitively restricted colour scheme contributed greatly to the overall quality of the unit.



1914

BEFORE



1972

AFTER

0 5 15 25 35 metres

WARD 7

An EMS-type ward, originally 28 beds, since upgrading 24. Construction is 11" cavity brickwork, combined with asbestos sheet roofing supported by timber trusses.

The upgrading took the form of two blisters constructed in timber throughout. One formed a day space capable of sub-division by means of a folding screen and was located at mid-bed area directly opposite the second which contained a sanitary annexe, including WC compartments, bath, sluice and patients' wardrobes.

The bed area was divided at mid-point into two separate nursing areas, off one of which opened two single bed rooms equipped with individual hand-rinse basins, wardrobes, etc. Access to the day area was direct from either multi-bed area.

General comment

1 The relationship of the added sanitary annexe and day space to the existing bed area was satisfactory

2 The sub-division of the bed area into two separate compartments helped greatly in acquiring the domestic scale of ward achieved

3 The allowance of 2.10m^2 per patient in the day area required patients to dine in one of the bed areas

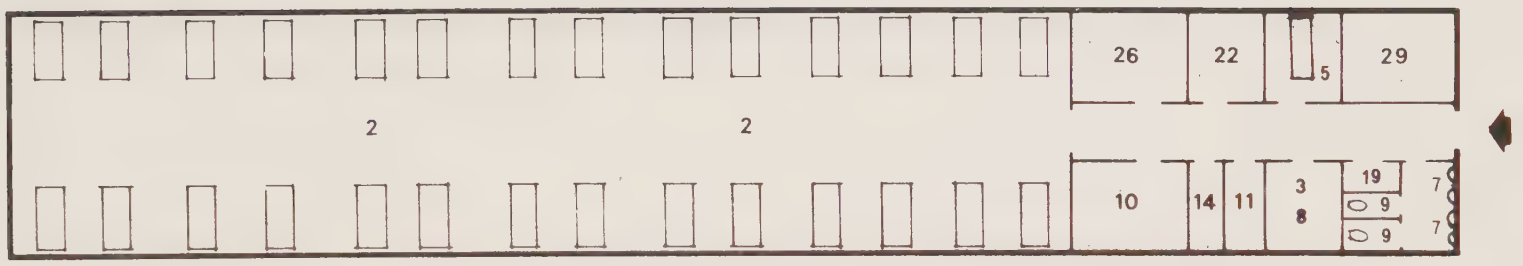
4 The service of food from the ward kitchen combined with dining in the bed area resulted in confused circulation at meal times

5 The dispersal of the nurse working rooms, eg preparation room at 42.50m from the sluice/disposal room, made for confused working

6 There was sufficient provision of individual patient wardrobes, albeit outwith the bed areas

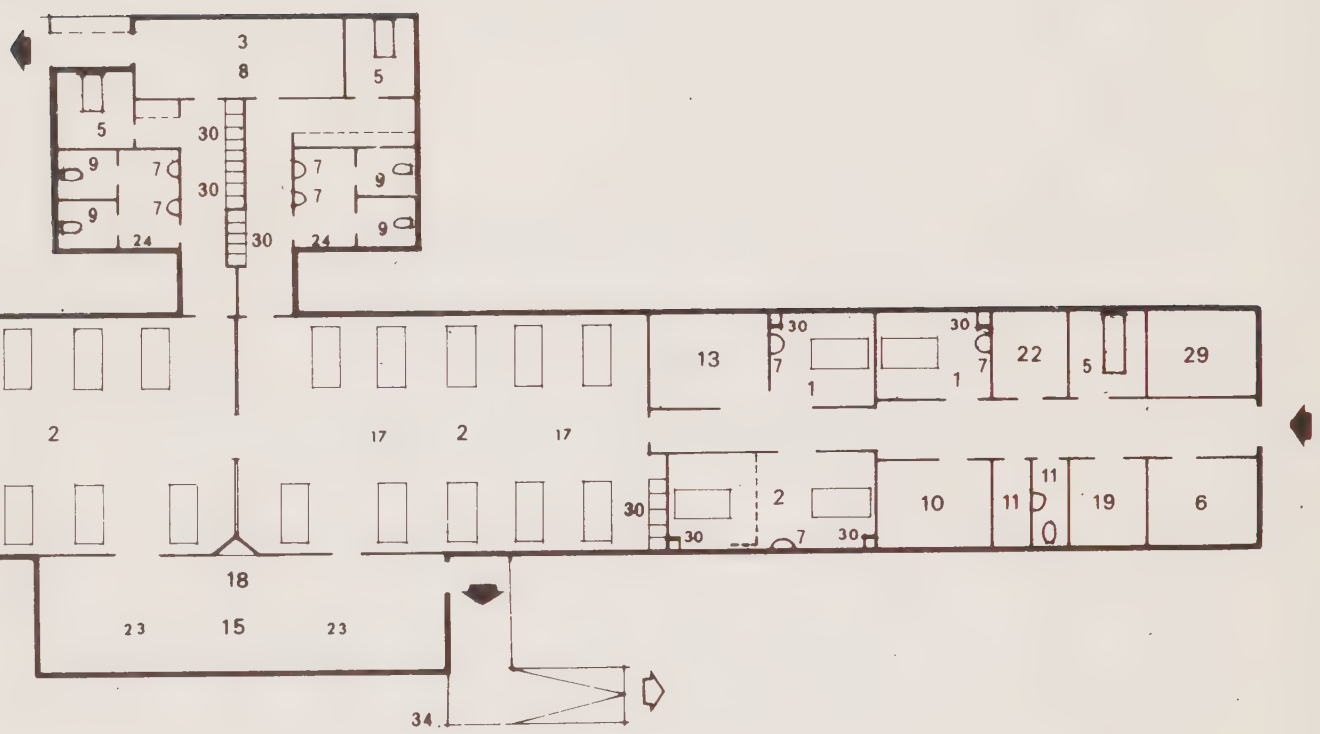
7 Both patients and nurses appreciated the thermostatic hand showers fitted to the wash-hand basins

8 The WC compartments, 1.70m deep x 1.40m wide, lacked hand-rinse basins. The positioning of two patient aid upright (monkey) poles before and to the side of the WC bowl combined with an inward opening door resulted in the compartments being unsuitable for assisted toileting.



1940

BEFORE



1964

AFTER

0 5 10 20 30 40 metres

APPENDIX II : SYSTEMATIC SEQUENTIAL APPROACH TO CONVERSION WORK

1 In any conversion or upgrading work there is a sequence of documentation and activities, resulting from interpretation of survey information and management decisions, which may be described as follows:-

Data

Establish management's objectives as outlined in the Statement of Need, ie the requirement for a building to fulfil a specific function for a defined number of years in the proposed location

Confirm that the existing structure is at least viable or can be economically made so for the required period

Survey

List size of building, location, access, services and fire regulations etc requirement

List backlog of maintenance and evaluate the existing building in the light of present and proposed use

Hypothesis

Would completion of backlog of maintenance make the building acceptable, or is there an urgent need for conversion or significant upgrading which would include the necessary nurse working rooms suitably located in relation to the bed rooms and day activity spaces they serve

Would the cost of the proposed alterations plus any extension be so great as to be out of proportion to the value of the existing shell so that a demolish and re-build policy would be more acceptable (provided finance is available for a new structure to Building Note standards)

Design

Prepare and cost a scheme to the approved brief that is acceptable to the appropriate authorities

2 As these comments will in varying degrees affect the final design and therefore the cost limit, it is essential that a rational sequence of comment should be followed, ie:-

Draft brief

The description of the methods proposed to achieve the objectives outlined in the Statement of Need, taking into account communications, number of beds, specialised functions, relationship with existing services, supply arrangements, staffing, site factors and any special requirements for power, ventilation, water and sewerage

Schedule of accommodation

The systematic listing of the physical facilities required to implement the functional plan, the detail to include the various areas required, their interrelationship, the possible number of occupants and the total area required

Sketch plans

The preparation by the architect of sketch plans sufficient to illustrate the combined requirements of the functional brief and the Statement of Need. Thereafter there will be the preparation of preliminary estimates of equipment and running cost requirements, and the determination of the probable capital cost

Probable cost

The preparation of the final working drawings taking into consideration the views and requirements of the following:-

a Hospital Engineer

b The Building Standards (Scotland) (Consolidation) Regulations 1971, Hospital Design Note 2: protection against fire (Ministry of Health), HMSO

c Firemaster

d HM Inspector of Factories

Final cost

After the completion of working drawings, and the preparation of detailed equipment lists, final estimates of cost are required. If these are within the cost plan, tenders for construction are invited and if accepted building then commences. Commissioning should be initiated soon after the start of building.

APPENDIX III

1 Single bed room
2 Multi-bed room
3 Disposal
4 Bath
5 Bath (free standing)
6 Preparation room
7 Wash-basin
8 Sluice
9 WC
10 Kitchen
11 Staff cloaks/WC and hand-basin
12 Special bathroom/cleansing area
13 Duty room
14 Equipment store
15 Day area
16 Quiet area
17 Dining area
18 Nurses' station
19 DSR
20 Interview/examination room
21 Utility room
22 Linen store
23 Wheelchair storage
24 Sani-chair storage
25 Treatment room
26 Sister
27 Staff room
28 Dirty linen storage
29 Switch gear/calorifiers etc
30 Patients' lockers
31 Patients' clothing store
32 Office (admin)
33 Lecture room
34 Fire escape staircase, ramp etc
35 Patio
36 Covered area
37 Occupational therapy store
38 Shower
39 Special couch
40 Serving top
41 Out-patients' waiting room
42 Doctor
43 Laundry
44 Stainless steel sink with laying shelf
45 Larder/pantry
46 Free-standing bidet/WC

Publications in the undernoted series are available from the Scottish Hospital Centre, Crewe Road South, Edinburgh, EH4 2LF. Tel. 031-332 2335

	Price (Postage extra)
CENTREPIECE	
An introduction to reading architects' drawings	25p
Upgrading of wards	62p
Changing accommodation for non-resident staff in hospitals	75p
Libraries in hospitals	75p
Voluntary services in hospitals	75p
Ward units for the physically and mentally handicapped	£1.25
Storage at point-of-use (incl Supplement at £1)	£2.50
Day hospitals for geriatric patients	£1.50
Collected conference reports 1966 – 1973 (5 volumes)	50p–75p
INFORMATION SHEETS	
1 Domestic service room	12p
2 Surface-mounted wardrobe incorporating bed-head services	12p
3 Preparation room	12p
4 Out-patient consulting/examination room	25p
5 Combined first stage and delivery room	25p
6 Combined examination/treatment room	25p
7 Mother and child room	15p
8 Plaster room	25p
9 Endoscopy room	20p
CENTRE NOTE	
Central sterile supply in Scotland	Postage only
Survey of Scottish hospitals	15p
Handling of patients' clothes in hospital	40p
CENTRE NEWS	
A newsletter reviewing activities at the Centre published at approximately two-monthly intervals	50p per annum